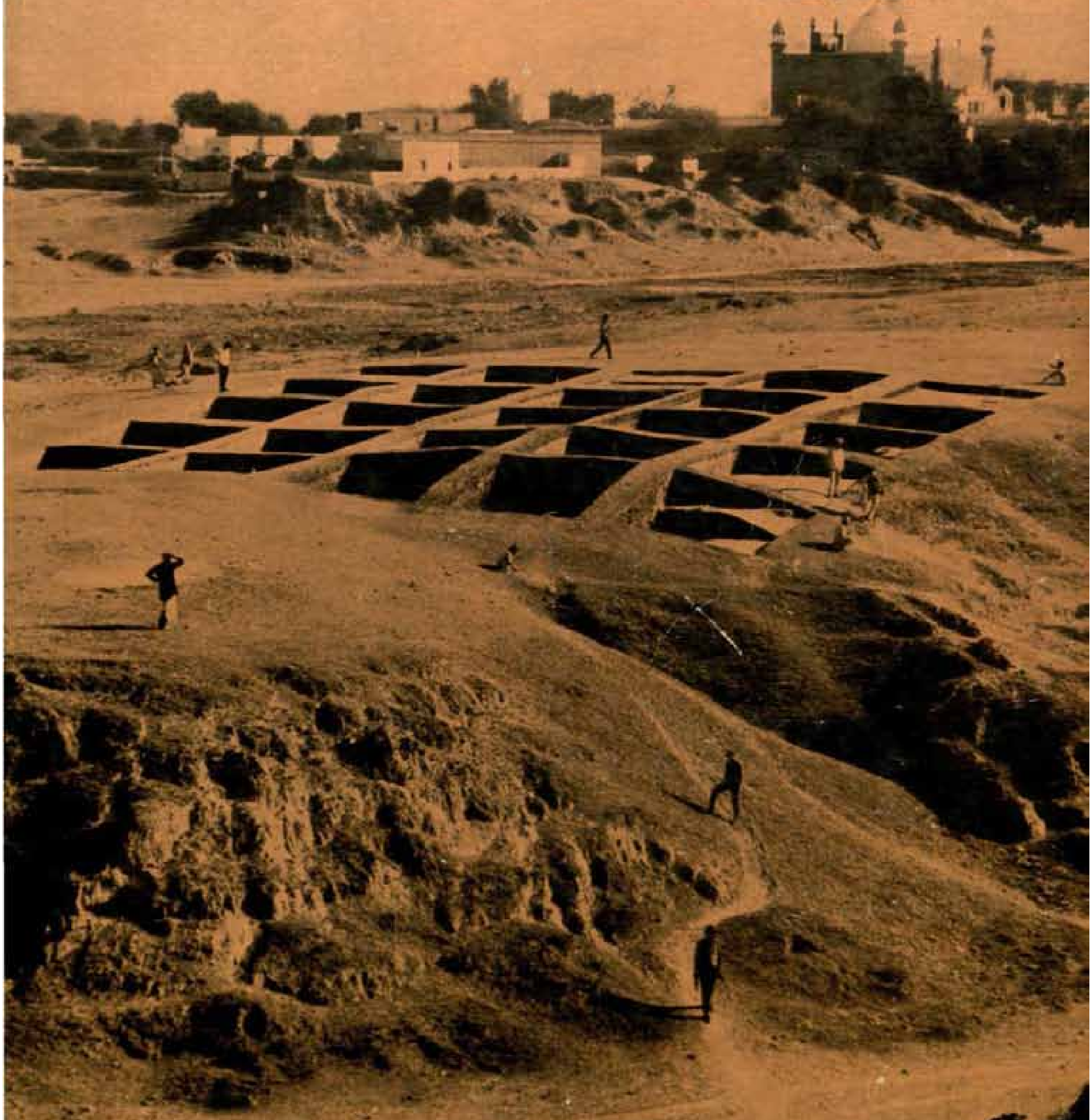
Indian Archaeology

1973-74 A REVIEW



INDIAN ARCHAEOLOGY 1973-74
-A REVIEW

EDITED BY

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ARCHAEOLOGICAL SURVEY OF INDIA
GOVERNMENT OF INDIA
NEW DELHI
1979

Cover

Excavation at Mathura

Price : Rupees 45-00

PRINTED AT NABA MUDRAN PRIVATE LTD., CALCUTTA, 700004

PREFACE

But for the strike in the entire printing industry in Calcutta this issue for 1973-74 should have come out much earlier. Nonetheless, the publication of this issue has reduced the arrears, which we hope to clear by the end of this financial year.

I take this opportunity of expressing my indebtedness to all the contributors for sending reports and illustrative materials : the universities and other research institutions, including the Physical Research Laboratory, Ahmadabad and the Birbal Sahni Institute of Palaeobotany, Lucknow; the State Departments of Archaeology; and the various Branches and offices of the Archaeological Survey of India. Needless to say, I do not hold myself responsible for the views expressed by the respective contributors. My thanks are also due to my own colleagues in the Survey who assisted me in editing and seeing the volume through the press.

B. K. THAPAR

New Delhi 14
March 1979

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INDIAN ARCHAEOLOGY 1973-74

—A REVIEW

I. EXPLORATIONS AND EXCAVATIONS

ANDHRA PRADESH

1. EXPLORATION IN DISTRICT ANANTAPUR.—During the course of exploration Shri I. K. Sarma, assisted by Shri S. Rama Rao of the South-eastern Circle, Archaeological Survey of India,[1] located an extensive ancient site eastwards of Tadpatri railway station on the right side of the Anantapur road. Of special significance was the discovery of hand made painted black-and-red ware, plain coarse red ware, besides the usual neolithic burnished grey ware, ground stone axes and fluted cores and short blades of chert, jasper and crystal. It may be recalled that Bruce Foote had also reported the occurrence of a few painted sherds from the site, which are now kept in the reserve collection of the Government Museum, Madras.

An early historical site was noticed on the right bank of the river Pennar, close to the protected temple-complex of Ramalingesvarasvami.

2. EXPLORATION IN DISTRICT CHITTOOR.—During the course of his exploration Shri D. Hanumantha Rao of the South-eastern Circle of the Survey found an Early Stone Age site in the vicinity of Gudimallam and Mittamidikandrika, on the left bank of the Sitakaluva, a tributary of the Suvarnamukhi, in Kalahasthi Taluk. The rivulet has cut the conglomerate bed to expose the tool-bearing horizon. The tools (pl. II C) comprised handaxes, cleavers, etc. The presence at this site of diminutive handaxes in large number is significant.

3. EXCAVATION AT GUDIMALLAM, DISTRICT CHITTOOR.—The South-eastern Circle of the Survey under the direction of Shri I. K. Sarma, assisted by Shri D. Hanumantha Rao, conducted a small-scale problem-oriented excavation within the Parasuramesvarasvami shrine at Gudimallam.

The temple-complex itself stands on an extensive but compact mound of the early historical period, yielding Black-and-red Ware, Russet-coated White-painted Ware and baked bricks. Removal of cut-stone slabs of granite for conservation revealed interesting facts about the unique *linga,* the earliest and only extant example of its kind in the country. The rectangular *pitha,* evidently a later one, found to be in two pieces fitted to the *linga* from either ends, was removed and the stumpy dwarf figure and the original *pitha* were exposed to view(pl. I). Certain unique features of this figure are the elephant legs and shrunken body. The *linga* shaft is square at the bottom and is fixed into two concentric rings (lower one 72 cm in diameter, and the upper 55 cm) of original platform (*pitha),* simulating the *yoni,* of brownish sandstone with finely polished surfaces. A square rail,

[1]This organization is referred to in the following pages as the Survey.

1.35 metre each side, (pl. I B) reminiscent of that of the early phases at Mathura or Amaravati was found to run around this *linga* set-up. The squarish uprights with three lenticular mortises fitted with cross-bars of the same shape was found carved in deep relief *(suchis* almost round in some cases) over a rectangular slab of reddish igneous rock, same as that of the *linga.* Each side was found fixed on vertical stumps with rectangular sockets, which in turn, were set on flat anvils. Three such stumps were fixed on each side to hold the rail slab in position. Stratigraphy obtained in the excavation within the*garbha-griha* may be summed up as follows.

Phase 1 (*circa* second-first century B.C.) is characterized by the Black-and-red Ware, dull red and red slipped wares, iron objects, cut bone pieces of domestic sheep, etc., and a single silver punch-marked coin (pl.II A). There are reasons to believe that *Siva-linga* within circular*yoni-pithas,* surrounded by the railing, was originally placed open to the sky, like the *vriksha chaityas* of yore. It was something like a *savedikalinga* coming into existence some time in the second century B.C. The rail pattern, showing floral motifs over the verticals, closely resembles that at Bharhut and Amaravati.

Phase 2 *(circa* first-third century A.D.) revealed the continuity of the earlier wares and the emergence of the Russet-coated White-painted pottery (pl.II B), baked bricks and the tile fragments of Satavahana-Ikshvaku affiliations. A brick apsidal temple seems to have been raised around the *linga.* Twelve courses of bricks of the side wall were found right below the foundations of the stone temple. However, the full plan of the brick temple could not be traced due to extremely limited space within the sanctum and the heavy stone structure overhead. A lime floor was laid outside the rail up to the brick wall during this period.

Phase 3 (*circa* middle of the ninth to the eighteenth century A.D.) witnessed large-scale changes: various minor shrines came up within the complex in this phase. Inscriptional evidences from the time of late Pallava king Vijayadanti Vikravarman (*circa* A.D. 845) onwards till A.D. 989, i.e. fourth regnal year of Raja III, register many gifts to the temple. During the ninth regnal year (A.D. 1127) of Vikramachola, the temple is stated to have been totally rebuilt in stone. Various other inscriptions from the temple testify to its continued worship till A.D. 1801.

4. EXPLORATION IN DISTRICTS CUDDAPAH AND KURNOOL.—Shri B. P. Bopardikar and Shri K. S. Venkatramaiah of the Prehistory Branch of the Survey explored and re-examined a part of the valley of the river Kunderu, a tributary of the Pennar in Districts Cuddapah and Kurnool, and discovered a few Early Stone Age and Middle Stone Age sites at Akkarampalle, Allagadda, Alluru, Chagalmarri, Gulladurti, Koilkuntla, Mitnala, Nandavaram and Srinagaram near Maidukuru. All the sites are situated on the Kunderu or on its eastern or western affluents. Srinagaram, a factory site of the Early Stone Age, is located in a lateritic deposit of secondary nature. The artefacts which are of quartzite were collected from the pits and comprised Acheulean handaxes, along with flake tools like scrapers, blades, points and a few cores. In District Cuddapah, near Erraguntla, on a tributary of the Pennar, a factory site of the Middle Stone Age was discovered on an eroded lateritic plain. Artefacts consisted of choppers, cores, discoidal cores, bifacial points and varieties of scrapers, made predominently on quartzite.

Few choppers, scrapers and flakes were also found on the Pennar at Dharamapuram.

5. EXPLORATION IN DISTRICT GUNTUR.—Shri I. K. Sarma of the South-eastern Circle of the Survey found an early historical site in the fields known as Pasuvemula Sivaru, west

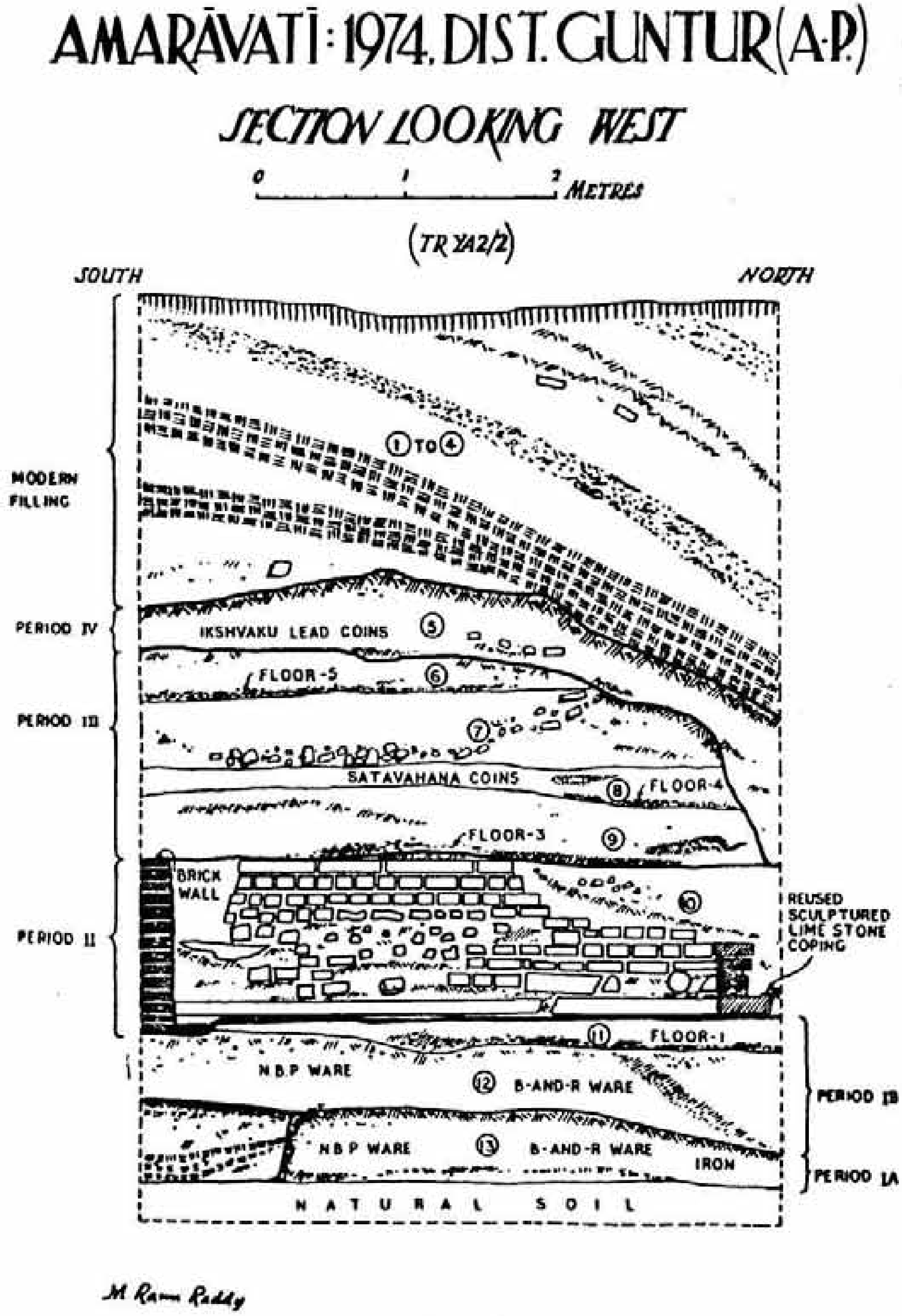

AMARĀVATĪ : 1974, DIST. GUNTUR (A.P.)
SECTION LOOKING WEST
0 1 2 METRES
(TR YA2/2)
SOUTH
NORTH
MODERN FILLING
1 TO 4
PERIOD IV
IKSHVAKU LEAD COINS
5
FLOOR-5
6
PERIOD III
7
SATAVAHANA COINS
8
FLOOR-4
FLOOR-3
9
PERIOD II
BRICK WALL
10
REUSED SCULPTURED LIME STONE COPING
11
FLOOR-1
N B P WARE
12
B-AND-R WARE
PERIOD IB
N B P WARE
13
B-AND-R WARE
IRON
PERIOD IA
NATURAL SOIL
M Ram Reddy

FIG. 1

of Brahmanandapalem village of Palnad Taluk. A limestone pillared hall (only stumps are visible) and brick walls of the Ikshvaku period, besides early historical pottery were found at this site.

At Pondugula in Gurzala Taluk, Early Stone Age tools mostly choppers and flake tools of quartzite were picked up from Dhandivagu beds, east of the temple-complex. An early historical mound was also located near the temple. Noteworthy finds obtained therefrom consisted of terracotta figurines and limestone sculpture pieces, depicting *Sibi-Jataka,* of the Ikshvaku period, besides pottery, shell-bangle pieces and bricks.

6. EXCAVATION AT AMARAVATI, DISTRICT GUNTUR.—The South-eastern Circle of the Survey, under the direction of Shri I. K. Sarma, assisted by Sarvashri T. V. G. Sastry, B. Raja Rao, D. Hanumantha Rao and K. Venkateswara Rao, carried out a small-scale excavation at Amaravati (pl. III). It may be recalled that the stratigraphical sequence of the site had not been properly established, though the site had been excavated several times, right from the days of Mackenzie (1797). The objectives of the present excavation were to provide a firm chronological frame-work to the history of the *maha-chaitya.* The area of the old sculpture-shed lying to the north and east wards of the *maha-chaitya,* being comparatively undisturbed, was chosen for the purpose. The excavation revealed the following cultural periods (fig. 1).

Period I (*circa* fourth-third century B.C.) has two sub-phases. Sub-period IA is characterized by the occurrence of pits dug into natural soil. These pits yielded profuse quantities of Black-and-red Ware and Northern Black Polished Ware, sometimes in association with iron. Among the noteworthy antiquities of the site were two inscribed potsherds (pl. IV A and B) in early Brahmi characters (reading *thisapata* and *malasa).* There was some evidence of the existence of huts built of wattle and daub and posts.

Sub-period IB is also associated with a large quantity of the Northern Black Polished Ware, Black-and-red Ware and black polished ware. As is well known inscribed granite uprights (pl. IV C), bearing typical Mauryan polish (*Kalavairagamasa thabho*) and some limestone cross-bars indicated the existence of an oblong structure built of fragmentary bricks and limestone encasement slabs. These limestone slabs with curved top bear representation in low relief of a three-barred rail (pl. V A).

Period I by and large appears to be coeval with the Mauryan phase. Perhaps no other site in peninsular India yielded such large quantity of Northern Black Polished Ware in association with a Buddhist establishment. Further, the stratigraphical position of the granite railing(pl. VI A), which appears to be partially flanking the main eastern and western entrances, together with the earlier finds like the fragmentary Asokan pillar-edict, revealed that the main *stupa* had decidedly a Mauryan base like that at Sanchi or Vaisali. Emperor Asoka appears to be the first royal patron to surround the *chaitya* with railing accompanied by an inscribed pillar.

Period II (second-first century B.C.) is marked by the continuation of the Northern Black Polished and Black-and-red Wares. Slipped and dull red wares and punch-marked coins, however, were found to occur in greater profusion. Equally significant is the intensive structural activity during this period. The excavation laid bare, near the eastern *qyaka* platform, a gateway in which bricks of large sizes—viz, 47x30x9 and 42x21x9 cm—have been used. Other finds include inscribed cross-bars, an upright carved with the figure of an elephant tusker standing below a *tala* tree (pl. V B), recalling the *Gajatama* on the rock at Kalsi, and lime-floors spread uniformly throughout the site. During this period, the railing

appears to have covered the entire perimeter of the *stupa*. The sculptural activity on lime-stone was found to be quite rich showing a distinctive Amaravati style with its affinity with the post-Asokan sculptural art of Bharhut.

Period III (*circa* first-second century A.D.) is characterized by the occurrence of the Rouletted, kaolin, polished black and polished red wares. It yielded a large number of Satavahana coins of copper, lead and potin, the earliest issue belonging to Vasisthiputra Pulumavi. Several sculptured cross-bars and copings have also come to light. The strati-graphical evidence (Satavahana) shows that the *stupa,* as it stands today, belongs to this phase.

Period IV (*circa* third-sixth century A.D.) yielded coins of the Ikshvaku and Vishnukundin rulers besides some isolated structures built of reused bricks. The Vishnu-kundin uninscribed copper coins (pl.VI B) depicting on the obverse *kuta-sikhara* is a distinct example.

Period V (*circa* sixth to eleventh century A.D.) is represented by stray *Vajrqyana* images and clay sealings with Buddhist creed formulae (pl. VI C). The strata are very much disturbed by modern activity at the site.

7. EXCAVATION AT GOLCONDA, DISTRICT HYDERABAD.—In continuation of the last year's work (*1972-73,* p.l), the Department of Archaeology, Government of Andhra Pradesh, undertook excavation in the area north of Qutb Shahi Tombs and brought to light palace-complex (pl. VII A) which included a pleasure pavilion surrounded by rooms on all the four sides having a cistern in the centre of the courtyard. The latter was provided with inlet and outlet drains. Watch towers and roads leading to the citadel flanked by guard rooms (pl. VII B) were also exposed. Beautiful small columns carved with *amalaka* and fret design in stucco, which might have belonged to a three-arched mosque with alcoves or *mihrabs* on the western side were also discovered. In another palace-complex a trefoil cistern was laid bare in the courtyard.

The plan of the city is similar to Konya or Tripoli built by Seljuks. This metropolitan town, covering more than 10 sq. km was probably founded by Qutb-ul-Mulk, an early king of the Qutb Shahi dynasty (A.D. 1618-1689), before the Golconda fort was occupied.

The structures were destroyed by fire due to the scorch-earth policy adopted by the people at the time of Aurangzeb's invasion in A.D. 1687, as evident from the ashy layer, charred wood and cinders noticed in all the trenches.

The excavation yielded a rich collection of Celadon Ware, stucco figurines, iron and copper objects, beads of semi-precious stones, rings, silver objects and terracotta elephant.

8. EXPLORATION IN DISTRICT KARIMNAGAR.—ShriD. Hanumantha Rao of the South eastern Circles of the Survey located ancient mounds at Dhudikota with ruins of a squarish fort containing ruined brick structures (size 56x28x9 cm) and yielding Black-and-red Ware, red-slipped and decorated wares, etc., beads, terracotta figurines and tiles and Satavahana lead coins. Megalithic stone-circles were also noticed in the vicinity of the above mound.

9. EXPLORATION IN DISTRICT KRISHNA.—During the course of exploration, Shri I.K. Sarma of the South-eastern Circle of the Survey discovered at Muktyala, in Nandigama Taluk, a large number of megalithic cist-burials bounded by cairn-circle (occasionally multiple-chambered cists also), besides an extensive early historical mound

known as Bhogalapadu with Satavahana-Ikshvaku vestiges, on the left bank of the river Krishna.

10. EXPLORATION IN DISTRICT KURNOOL.—During the course of the exploration, Shri I. K. Sarma of the South-eastern Circle of the Survey found important early Chalukyan temples of stone in the famous Navanandi limits of the Mahanandi *kshetra,* Nandyal Taluk. The Sivanandisvara temple-complex, a *sandhara Vesara-prasada* at Kadamala Kaluva along with various minor shrines and monolithic temple models of *Dravida* and *Vesara* Orders (in all twenty-six) are of special significance and datable to early Chalukyan period (seventh-eighth century A.D.). In the close vicinity of the temples, brick structures along with early historical relics were also found.

Shri K. Venkateswara Rao noticed: (a) an early historical mound \ km south of the village; (b) late Vijayanagara temples; (c) inscription in old Kanarese characters on a slab (1.60x0.80 m) near Ramalingesvara temple; and (d) a *veeragal* at Peda Harivanam in Adoni Taluk.

11. EXCAVATION AT GOLLATHAGUDI, DISTRICT MAHBUBNAGAR.—In continuation of the last year's work (*1972-73,* p.2), the Department of Archaeology, Government of Andhra Pradesh, excavated the mound in front of a brick temple, and exposed two adjacent temples. A damaged seated figure of Mahavira, in front of a sculpture of a standing devotee, was found in one of the temples. The plan of the temple consists of a *garbhagriha, antarala* and a pillared hall. The pillared hall is found to be decorated with *devakutas.* The shrine is flanked by two oblong chambers, and stood on a moulded plinth.

In addition to the above, remains of three more temples were exposed near the brick temple. A mutilated sculpture showing a pot-bellied human figure was found in this complex. Stucco figures, stone carvings, besides pottery constituted the important finds from the site.

12. EXPLORATION IN DISTRICT MEDAK.—Shri I.K. Sarma of the South-eastern Circle of the Survey assisted by Shri R. Siva Sarma, discovered a small *stupa-mound.* overlooking the Museum at Kondapur. The brick size (53x53x10 cm) is unique and conforms to that of the Mauryan ones. Other finds include Black-and-red Ware and red-slipped ware.

13. EXPLORATION IN DISTRICT NELLORE.—Shri I.K. Sarma of the South-eastern Circle of the Survey discovered an early historical fortification, rectangular on plan, covering nearly 24.3 hectares west of the village Pudur in Nayudupet Taluk. The brick wall was found to overlie a gravel fortification, and the moat all round is nearly 30 m wide. Besides pottery, the structural remains in brick, clearly indicate a late Satavahana-Ikshvaku assemblage at the site.

14. EXPLORATION IN DISTRICT PRAKASAM.—Shri I.K. Sarma of the South-eastern Circle of the Survey discovered an extensive and unique neolithic site in Kanigiri town within the granatoid hills (Kanigiri Kondalu) in an area locally known as Boggula Gonde. Of special interest is the U-shaped valley with (pl. VIII) a meandering nullah in the centre having an extensive habitation deposit with profuse quantities of hand-made neolithic pottery (pl. IX A), ground stone tools (pl. XI), steatite disc beads (pl. X) and microlithic short blade industry (pl. X) of chert, jasper and chalcedony. A few caves and rock

shelters (pl. IX B) yielding ground stone axes, mace-heads, querns (pl. XII) and flake tools are significant.

An open area, south of the hill, also showed a rich habitational debris with stone tools, pottery, bones, etc. The site, however, was found to be badly disturbed by the local people.

Atop the hill was located an extensive medieval fortification within which several ruined tanks and temples, besides images, more particularly of Vishnu in black stone (twelfth century A.D.), were noticed. A pillared *mandapa* of the Vijayanagara period was noticed at the southern foot of the hill.

Renewed explorations at the famous site of Pusalapadu (1962-63, pp. 2, 65 and 67), Giddalur Taluk, yielded a rich variety of Early and Middle Stone Age tools including axes, cleavers and flake tools of quartzite.

15. EXCAVATION AT CHANDAVARAM, DISTRICT PRAKASAM.—In continuation of last year's work (*1972-73,* p. 3), the Department of Archaeology, Andhra Pradesh, further excavated the site to find out the details of the Buddhist *stupa* and *vihara.* The huge *stupa* (pl. XIII A) having double terrace and railing carved with interesting subjects, was found to have platforms at cardinal directions for the *ayaka* columns. The core of the structure was made of bricks laid in mud. The *stupa* is approximately hemispherical in shape surmounted by *harmika* closely following the plan of the Dharmarajika *stupa* at Taxila. The casing slabs of the *stupa* were carved with Buddhist themes (pl. XIII B), winged monsters, lions and bulls. The treatment of the motifs recalls the west Asian art tradition. From the second terrace of the *stupa* a flight of steps was found to lead to the *vihara.*

Another *stupa* exposed at this site was found to be similar in plan to the ones found in Andhradesa showing a wheel with spokes and hub. An apsidal *chattya-griha* was also exposed nearby.

16. EXCAVATION AT MOTUPALLI, DISTRICT PRAKASAM.—The Department of Archaeology, Andhra Pradesh, excavated the ancient sea-port in Chirala Taluk, and exposed a huge brick structure measuring 22.20x5-31 m. The maximum extant height of the walls is 3 m, the thickness 50 cm. The bricks (size 24x13x5 cm) were joined by mud mortar. The walls which were plastered with lime were provided with an off-set slightly above the floor level. Each wall had a central door, measuring 1.07 m in width. Long iron blades on which single leaf wooden doors were mounted were found at the base level of the doors.

Two rows of pillar-bases 2.55 m apart having nine pillars in each row were exposed inside the structure.

Another rectangular brick (size: 20x5 cm) structure, measuring 7.80x3.50 m was also exposed. The extant height of the wall comprising 20 courses was 1.00 m with an average thickness of 50 cm. The superstructure supported by wooden pillars might have carried a tiled roof.

Among the noteworthy finds were Chola coins of Rajaraja, Chinese coins of early Ming dynasty, iron objects, and Celadon Ware. On the basis of these finds these structures can be dated to the Telugu Chola kings of eleventh-twelfth century A.D. and to the dynasties of Kakatiyas and Reddis.

17. EXPLORATION IN DISTRICT VISKHAPATNAM.—Dr Thimma Reddy of the Department of Anthropology, Andhra University, Waltair, along with a group of students explored and discovered Stone Age sites near and around Aganampudi, Bhimunipatnam, Boyapalli, Gangavaram, Gollapeta, Lankelapalem, Madhuravada, Mangalapalem, Marripalem, Paravada and Tanam. All the sites are located within a radius of 30 km from Visakhapatnam.

The section of the river at Boyapalli revealed three gravels, each capped by a silt. The lower and middle gravels do not seem to be implementiferous, but the third gravel which is sealed by red silt of varying thickness was found to be the horizon of the Late Stone Age artefacts. At Lankelapalem and Gollapeta, two pebbly gravels, sealed by a layer of calcarious coarse sand and red silt respectively were observed in the sections of the nullahs. The basal gravel yielded Early Stone Age artefacts. Thus, tentatively a three-gravel cycle can be postulated for the area which is also seen at Boyapalli.

The raw material used for the manufacture of the Early Stone Age artefacts is mostly gneiss, while the Middle Stone Age tools are made on dirty quartz. The Late Stone Age implements are exclusively made on chert and basalt material. The principal forms obtained in the Early Stone Age are handaxes, cleavers, choppers, and scrapers, while those in the Middle Stone Age include scrapers, borers, points made on flakes and flake-blades. The Late Stone Age tools consist of backed blades, burins, points and scrapers, besides, mace-heads, stone balls, and 'tablets' of stone. Ground and polished implements like axes, chisels, microh'ths, mace-heads, saddle-querns, etc., occur in the neolithic culture-assemblage. Coarse red ware is found associated with this lithic industry.

Stone alignments measuring approximately about 15 x 15 m were also noticed.

18. EXCAVATION AT PALAMPET, DISTRICT WARANGAL.—With a view to ascertaining the nature of the foundations and sequence of the temple units, trial pits were sunk close to the *jagati* (podium) of the *Nandi-mandapa,* Devi shrine and the shrines at the southern extent. The work was conducted by Shri K. Venkateswara Rao, under the direction of Shri I.K. Sarma of the South-eastern Circle of the Survey. The digging showed clearly that the southern shrine had an earlier foundation than the main temple and the *Nandi-mandapa.* But subsequently this complex was converted into a sort of elaborate entrance (*dvarasala*) with shrines at the extremes. A massive compound wall was found to cover the plinth mouldings. In the course of this operation, medieval pottery comprising dull red and black wares, iron axe and two silver toe-rings were also found.

BIHAR

19. EXCAVATION AT ANTICHAK, DISTRICT BHAGALPUR.—In continuation of the previous year's work (1972.73, pp. 3.6) the Vikramashila Excavation Project, under Dr B.S. Verma, assisted by Sarvashri B.N. Prasad and S.C. Saran, undertook excavation at Antichak and exposed fairly large area of the Buddhist monastery, measuring 330 m square on plan, having a spacious courtyard with a central shrine. The northern outer wall 3.60 m in width which runs to a length of 330 m has been exposed completely.

In all one hundred and twenty monastic cells, including fifty-two cells exposed last year, and the common verandah in front, have been unearthed. It is found that the cells and the verandah are resting on three parallel walls including the outer wall mentioned above. The thickness of the middle and the inner walls are 2.50 and 1.50 m respectively. The gaps between the walls and the foundation walls are filled with earth. The height of

the plinth of the structure is 2.10 m. The floor of the cells and the verandah is made of rammed *surkhi* and lime (pl. XIV). Each cell was provided with a 1.35 m wide door in the front wall. The cells were provided with a long stone drain fashioned by cutting a channel, discharging outside the outer wall of the monastery. Six more cells, in group of three each, projecting from the western and southern outer walls, have been exposed.

In addition to the rectangular and six circular structures, arranged alternately at a distance of 30 m from each other, which were exposed last year, seven more circular structures were excavated in the year under review. These magnificent structures all round the monastery, project from the outer wall and are connected with the corresponding monastic cells by a passage. The rectangular structures measure 9 m x 6 m including the thickness of the walls while the diameter of the circular structure is 9 m (pl. XV).

One more underground chamber (pl. XVI) has been partly exposed in centre of the southern mound.

Among the antiquities special mention may be made of: Avalokitesvara and Vaishnavi in black basalt stone (pl. XVII A), two Avalokitesvaras (pl. XVII B) and one standing Buddha in bronze; two terracotta sealings (pl. XVII C) with inscription, miniature *stupas* (pl. XVII D); and one copper ring-cum-seal. The legend on one of the sealings reads *Sri Purnshohamyalah,* and the legend on the copper seal reads *Vikramasya.* Mention may also be made of a stone lamp (pl. XVIII A), terracotta conch-shaped pots (pl. XVIII B) and *makara-axid* tortoise-shaped knobs (pl. XVIII C), terracotta plaques with human figures (pl. XIX A) and lotus (pl. XIX B), medallion (pl. XX A), fragment of an votive *stupa* in limestone (pl. XX B), and other miscellaneous objects (pl. XXI).

Pottery is represented by red, grey and black wares, sometimes slipped and decorated. Common shapes comprise storage jars, vases, carinated *handi,* conical bowls, miniature pots, etc.

On the basis of the finds the structures may be dated to ninth to twelfth centuries A.D.

20. EXCAVATION AT BAKRAUR, DISTRICT GAYA.—The Excavations Branch of the Survey, under the direction of Shri K. M. Srivastava undertook excavation at the ancient site of Bakraur, near Bodh Gaya, located on the right bank of the river Niranjana. The site (pl. XXII), situated just north of the village, is traditionally known by various names like, Sujata Kuti, Sujatagarh and Sujata Quila, named after the maiden Sujata, the daughter of the chief of the village, who offered milk-rice to Buddha after he had undergone severe austerities for six years to gain Enlightenment.

The *stupa,* which is supposed to have been constructed to perpetuate the memory of the maiden Sujata, was found to be standing to a height of 11 m. Unfortunately, through the years it has been severely ransacked to collect baked bricks, caskets and reliquaries. Several plaques of Buddha in *bhumisparsha-mudra,* made probably of plaster and surprisingly light in weight were found near the damaged top of the *stupa.*

The *stupa* was found to be built in three stages (pl. XXIII A). The *pradakshina-patha* made up of baked bricks, was narrow in the earliest stage. It was surrounded by an enclosure wall of baked bricks (pl. XXIIIB). Subsequently the diameter as well as the height of the *stupa* was increased, thus covering the original *pradakshina-patha.* At that stage a 5 m wide *pradakshina-patha,* of thick lime plaster was added (pl. XXIV A). Moulded bricks were used in the facing of the *stupa.* In the third stage of construction an enclosure wall of baked brick covered by lime plaster, railings and gateways, probably in all the cardinal directions, were provided. All around the enclosure wall, as also in front of the gateway, a *pradakshina-patha* of a poorer kind of lime plaster was also added (pl. XXIV B).

On one side of the gateway was found a baked brick platform, possibly intended for congregation. The purpose of the two brick structures at the back of the gateway could not be determined.

Encased in lime plaster, the maximum diameter of the *stupa* in the last stage was about 65.50 m. Mud-mortar of varying thickness was used as binding medium in the construction of the *stupa.* The railings and pillars were made of stone.

It has not been possible to date the different stages of the *stupa* with certainty. The last phase of the *stupa,* however, can be assigned to a date between eighth and tenth century A.D., on the basis of terracotta sealing and plaques. It is quite likely that the religious zeal of the Palas was responsible for the enclosure wall, railing and the gateway. The earliest occupation of the site may be placed in the second-first century B.C. on the basis of fragments of dark grey polished ware found in a partially exposed monastery-like structure towards the north-east of the *stupa.*

The important finds (pl. XXV) of the excavation include: a fragmentary ear-ornament of gold; small terracotta plaques; beads of agate and terracotta; a punch-marked coin; head, torso and multiple Buddha in stone; a few ornamental pieces; and a terracotta sealing.

21. EXPLORATION IN DISTRICT HAZARIBAGH.—Sarvashri B. Narayan, S. K. Kaviraj and Braj Mohan Kumar of the Department of Ancient Indian History and Archaeology, University of Patna, under the guidance of Prof. B.P. Sinha, explored the western fringe of the Damodar Valley. The gravel bed of the Lela Bandha nullah, flowing south to north, 14 km west of Hazaribagh, on the Hazaribagh-Chatra road, yielded tools, mostly handaxes, belonging to the Early Stone Age.

22. EXPLORATION IN DISTRICT MELINDA.—Sarvashri B. Narayan, S. K. Kaviraj and Braj Mohan Kumar of the Department of Ancient Indian History and Archaeology, University of Patna, under the guidance of Prof. B. P. Sinha, explored the Dhalua nullah, about $2^{1/2}$ km to the south-west of Sone-Bhandar Cave at Rajgir. The Middle Stone Age tools, comprising side-scrapers, concave-scrapers and blades, were collected from the dry bed and the cemented gravel overlying a loose deposit of gravel of the nullah.

23. EXPLORATION IN DISTRICT NAWADAH.—Sarvashri B. Narayan, S. K. Kaviraj and Braj Mohan Kumar of the Department of Ancient Indian History and Archaeology, University of Patna, under the guidance of Prof. B. P. Sinha, found a small handaxe of the Middle Stone Age in a dry bed of a nullah in between the villages Ektara and Kakolat, in the course of the exploration.

24. EXCAVATION AT APSAD, DISTRICT NAWADAH.—The Department of Archaeology and Museums, Government of Bihar, Patna, undertook excavation at Apsad, (pl. XXVI A) representing the ruins of the Vishnu Temple, under Dr Prakash Gharan Prasad assisted by Sarvashri B. K. Sinha, A. K. Sinha, J. Akhtar, L. P. Singh, N. G. Ghosh, R. P. Verma and U. S. Pandit, under the general direction of Dr B. P. Sinha. The main objective of the excavation was to trace out the history and architectural characteristics of the later Gupta temple. The excavation revealed two cultural periods.

Period I, represented by a 1.10-m thick deposit, yielded a few antiquities such as terracotta animal and female figurines, one broken piece of ivory bangle and one fragmentary iron object. The ceramic industry was characterized by red ware represented

by bowls, dishes and vessels of medium to coarse fabric, although a few sherds of the Northern Black Polished Ware of medium fabric, black ware and black-and-red ware were also obtained.

Period II revealed structural remains of the probable Vishnu Temple (pl. XXVI B), consisting of a rectangular room having a drain through the southern wall. The floor was paved with bricks and plastered with lime concrete. The bricks of the walls were laid in mud mortar. The thickness of the walls vary from 0.70 to 1.65 m.

On the western side of the mound was exposed a stair-like structure. Two fragmentary remains of the *pradakshina-patha,* one of which was found near the stair-like structure and the other just below the room structure, were unearthed.

The walls around the platform had projecting corbelled cornices. The finished bricks were of different shapes and sizes, the dominant size being 46 x 23 x 6 cm.

Among the important antiquities of the period mention may be made of a small stone sculpture of Vishnu, one terracotta sealing having inscription in later Gupta characters, five beads of semi-precious stone, one glass bead and six terracotta beads. Besides, a large number of clay lamps, miniature pots in red ware and bowls, vessels, jars, etc., in coarse red ware were also found.

DELHI

25. EXCAVATION AT MAKHDUM SAHIB'S MOSQUE, NEW DELHI.—Shri T. N. Khazanchi, of the North-western Circle of the Survey, assisted by Sarvashri R. P. Sharma and S. S. Saar, undertook excavation at Mukhdum Sahib's Mosque, near Punch Sheel Colony, where certain structures running almost parallel to the mosque had been noticed while clearing the debris. North-south oriented six trenches of 10-m square were excavated to find out the stratigraphic relationship of the structures with the mosque.

The excavation revealed a 3.50-m thick occupational deposit representing a angle culture, which can be dated from A.D. 1300 to 1517. The period, however, may be divided into four phases on the basis of structural, numismatic and ceramic evidence.

Phase I is marked by a platform, a cistern of baked bricks and a rubble wall, running east-west, laid above or into the natural soil. These structures existed prior to the construc tion of the mosque. The finds obtained from the deposit of this phase include red ware vases with grooved rims, bowls, *handis,* iron nail and a copper ring. The pre-Mughal glazed pottery is conspicuous by its absence.

Phase II is represented by the construction of Makhdum Sahib's Mosque, along with a floor of brick-bats and a drain along the south-western side of the mosque, The pre-Mughal glazed pottery makes its appearance, along with storage jars with grooved rim, vases with undercut rim, *handi* with flared rim in red ware, lamps with pressed ends, etc. Other finds are iron arrow-heads, nails and copper coin.

Phase III represents the apex of constructional activities around the mosque. It is a post-Mosque phase represented by the addition of cells, fortification wall with side wa Is making halls, rooms in the interior of the boundary wall, hearth inside the room and wells. Dish of red ware having glazed polish and paintings indicate the initial experimentation to produce the glazed pottery locally. Other antiquities of the phase are iron nails, flat iron bar like *chimta,* hafted dagger, arrowheads, spearheads beads of glass and jasper metallic ball, querns and terracotta horses. A copper coin of Bahlol Lodi (A.D. 1451-1488) was also found from the associated levels of this phase.

Phase IV is posterior to the cells and is marked by a wall running along the cells in north-south alignment. The other walls of this phase, laid in east-west orientation, were constructed to enlarge the habitable space in the cells. A contemporary rectangular oven of this phase might have been used as a community hearth or for burning lime. Other finds include iron nails, stone querns, terracotta horses, and nearly eighty copper coins of Sikander Lodi (A.D. 1488-1517). These coins are of various denominations and bear the legend 'Rahman Almumnin Khilad-Khilaftah' on the obverse and 'Rahman Sikander Shah Bahlol' on the reverse. The readable dates are A.H. 902, A.H. 911, and A.H. 913.

GUJARAT

26. EXPLORATION IN DISTRICT AHMADABAD, KHEDA AND SABAR KANTHA.—The Department of Archaeology, Government of Gujarat, in the course of exploration in the above-mentioned Districts located seventeen ancient sites.

Dr H.D. Sankalia, of the Deccan College Postgraduate and Research Institute, Pune, was associated with the team headed by Shri J.M. Nanavati, and it explored the Majhum and Meshvo rivers in District Sabar Kantha. The sites in Daskroi and Mahemadavad Taluks of Districts Ahmadabad and Kheda, were suggested by Shri V.M. Trivedi of Udrel, while the site in Ahmadabad city proper was brought to light by Shri Nirubhai Desai of Ahmadabad.

(*ESA = Early Stone Age; MSA = Middle Stone Age; LSA = Late Stone Age;* and *H = Historical.*)

District	*Taluk*	*Village/Site*	*Period*
Ahmadabad	City	Ahmadabad	H
”	”	Vejalpur	-do-
”	Daskroi	Fateha Vadi	-do-
”	”	Kamod	LSA
”	”	Naj	LSA, H
”	”	Odd	LSA
”	”	Paladi Karjan	-do-
”	”	Vanzar	-do-
”	”	Visalpur	-do-
Kheda	Mahemadavad	Pahadia	H
”	Nadiad	Devagam	H
Sabar Kantha	Abhapur	Vijayanagar	MSA
”	Khedbrahma	Ganchhali	-do-
”	Modasa	Gebi	ESA
”	”	Sabalpur	-do-
”	Prantij	Chekhala	-do-
”	”	Tajpur	-do-

HIMACHAL PRADESH

27. EXPLORATION IN DISTRICT NAHAN.—In continuation of the last year's work (1972-73, p. 13) prehistoric exploration in the Liddar Valley in Kashmir, Drs R. V. Joshi, S. N. Rajaguru and G. L. Badam of the Deccan College Postgraduate and Research Institute, Pune, and Shri P. C. Khanna, Geologist of the Geological Survey of India, Chandigarh, jointly surveyed the Markanda river valley.

During the survey, systematic geological and geomorphic mapping was carried out in the Markanda valley, a tributary of the Ghaggar. Five non-paired river terraces were recognized at heights of about 50, 30, 18, 15 and 5 m respectively, above the present river bed. Of these, the terrace of 18 m (Gagal terrace) is the most extensive and the stone tools were found on this as well as on the lower terraces. The terraces are composed of river gravel and lie either on the Nahan or Tatrot, or Pinjor or boulder conglomerate of the Siwalik formations of the area.

The stone age sites in this valley lie in the Saketi area where the Geological Survey of India has planned the construction of National Park for Siwalik fossils for which this region is very famous.

The stone tools are made on pebbles or pebble-flakes of quartzite rocks and comprise choppers and scrapers. The choppers are mostly unifacial and only one or two show bifacial working. Handaxes and cleavers have not yet been found. But such tools have been earlier discovered in the Banganga-Beas basin of Himachal Pradesh. Most interesting tool from the Markanda valley near Kala Amb is a bifacially worked scraper on a thin oval-shaped pebble flake indicating advanced Acheulean characters. While the choppers clearly belong to the Lower Palaeolithic culture, the developed form of the bifacial scraper indicates existence of the early phase of Middle Palaeolithic culture in the area.

The Siwalik fossils from the Saketi area belong to the late Pliocene to the early Pleistocene periods. The boulder conglomerate is mostly non-fossiliferous. The river terraces which are of post-Siwalik age have not so far yielded fossils for firm dating of the cultural material.

Remains of a small stone temple and a masonry pond were noticed in the vicinity of the village Vrijbrore in the Kilar forest range, in Taluk Shupiyan. In the close proximity to the above were found two *lingas* with moulded base carved in relief on a small rock, one of which is flanked by figures of Ganga and Yamuna standing on their respective vehicles and dated to *circa* twelfth-thirteenth century A.D.

JAMMU AND KASHMIR

28. EXPLORATION IN DISTRICT ANANTNAG.—Shri L.K. Srinivasan, assisted by Sarvashri Sardari Lai and R.N. Kaw, of the Frontier Circle of the Survey, in the course of exploration discovered a site at Karalchak yielding fragmentary decorated tiles bearing close similarity to the ones from the famous Buddhist site at Harwan.The decorations consist of: (i) vine plant with bunches of grapes and a flying bird below followed by a Kharoshthi numeral (pl. XXVII A) ; (ii) a flower plant rising from a rounded vase with a full blossomed flower flanked by two leaves. On the left of the plant are engraved Kharoshthi numerals (pl. XXVII B) ; (iii) acanthus-like leaves on one side below which are engraved Kharoshthi numerals (pl. XXVII D); and (iv) non-descript motif of flower and leaves with a few lines radiating from a central object (pl. XXVII C).

29. EXPLORATION IN DISTRICT JAMMU.—Shri L.K. Srinivasan of the Frontier Circle of the Survey in the course of exploration in the District discovered an Early Stone Age site near the village Tanda, 6 km north of Akhnur on the western bank of the *khad* known as Tandewali Khad. The tools (pl. XXVIII A) consist mostly of unifacial choppers with concial and rounded butts, besides a number of flakes.

30. EXCAVATION AT PAMBARWAN, DISTRICT JAMMU.—Shri L.K. Srinivasan, assisted by Sarvashri Sardari Lai and Puran Singh, of the Frontier Circle of the Survey, undertook an excavation at Pambarwan, close to the modern town Akhnur on the northern bank of the river Chenab, from where beautiful terracotta heads had been reported earlier. The excavation was intended to obtain the cultural sequence and to identify the stratigraphical horizon of the terracottas found earlier. Two phases of structural activity were revealed in the 1.80-m thick occupational deposit, the earlier of which represented by a baked brick structure and the later by a brick wall which runs over the earlier one. The ceramic industry is represented mainly by a red ware of medium to fine fabric represented by bowls, lids, spouts and vases.

31. EXPLORATION IN DISTRICTS PUNCH AND RAJAURI.—Following a chance discovery of a few antiquities including pottery, a preliminary exploration was conducted by a team of Indian Army Officers headed by Lt. Gen. Jacob, Maj. Gen. Sethna, Major Bakshi and Capt. S.S. Randhawa. Subsequently, a team consisting of Sarvashri M.C. Joshi, Avtar Singh, R.K. Sehgal and J.N. Khera of the Excavations Branch (II) of the Survey visited the sites explored by army officers for further investigations. Important sites explored by the latter team included Loran, Sakhipir and Surankot (Maindhar valley) in Districts Punch and Rajauri, Ujjan and Thanamandi in District Rajauri.

At Loren, no significant structural remains were noticed although ancient pottery collected from the site comprised red ware, both plain and decorated. An interesting shape included a tumbler-like pot with concave sides and a short pedestal.

A covered-spring (*baoli*) with features of medieval Kashmir architecture was noticed at village Surankot. Among the structural renderings on the *baoli,* mention may be made of some figures of Naga divinities, miniature shrines and pilasters. The pottery collected from Surankot comprises red ware vases, knife-edged bowls, fragment of a grey ware dish and sherds with applique, stamped and incised designs.

At Sakhipir, remains of a large temple-complex, containing a square enclosure (*prakara*) and damaged *jagati* with a flight of steps in front and traces of a sanctum as indicated by a stone pedestal for the insertion of the image, were found. Remains of a subsidiary shrine at a corner were also observed. It is likely that the temple was of *panchaytana* type. Made of large blocks of stones, the shrine does not bear any sculptured figures in its extant form and has no arrangement of cells along the inner face *of prakara.* Typologically, it seems to be an early specimen of the medieval Kashmir temple architecture. About a few hundred metres to the west of the temple on the river section was noticed an entrance marked by a corbelled arch which may be contemporary with the temple-complex. The pottery found from this area includes red and black wares with grooves, U-shaped design and horizontal band on the exterior. Amongst the bowls the one representing knife-edged variety is noteworthy.

At Rajauri, old pottery was collected from a damaged section of a slope almost 6 km away from the present township. The pottery assemblage (pl. XXIX A) consists of jars of spouted variety, bowk, a laddie, a dabbar, spouts, an object used for producing stamped

impression on pots, loop-shaped handles with attractive designs, deep bowls and ornamental bricks. The decorative content is represented by a variety of stamped designs and incised patterns. A few rubble structures were also located on a hill-top called Dhaudhari-nar at a distance of about 8 km from Rajauri township.

Near the village Ujhan, in the bed of the river Darhal, a large boulder was found carved with Saivite sculptures. The carved figures represent three miniature *Siva-lingas* and a standing male figure in a niche (pl. XXVIII B). The male figure, probably a Saiva ascetic, has his right hand in *vyakhyana-mudra,* while in the left is held an indistinct object.

Nearly 25 km to the east of Rajauri at Thanamandi were found vestiges of medieval period in the form of structural remains, a slab bearing a four-armed deity in a Devi temple and two damaged *baolis.* The Devi temple contains late medieval sculptures depicting some of the *matrikas* and Mahishamardini. Pottery collected from the site consists of red and black wares including a chocolate coloured ware.

32. EXPLORATION IN DISTRICT SRINAGAR.—In the course of exploration in the locality known as Zadibal in the outskirts of Srinagar city, Shri L. K. Srinivasan, assisted by Shri Sardari Lai of the Frontier Circle of the Survey, discovered a medieval site yielding a fragmentary terracotta plaque, depicting a four-armed mother goddess (pl. XXIX B) and pottery of Mughal period. The stylized frame and *prabhavali* crowned by a lion's head in which the standing deity is shown, displays crude workmanship. This site marks the area where the garden of Ali Mardan Khan, the governor of Kashmir during the reign of emperor Shahjahan stood.

Another site near village Dabipura, in Taluk Badgam, from where a hoard of copper coins was reported, was also explored. Besides pottery of the pre-Mughal period, forty-four copper coins, forming a part of the hoard were obtained. All the coins were issued by the royal mint of Srinagar and belong to the Sultans of Kashmir under Shah Mir and Chak dynasties, datable to the fourteenth-sixteenth century A.D.

33. EXCAVATION AT BURZAHOM, DISTRICT SRINAGAR.—The excavation was resumed at Burzahom in the sector earmarked for the museum building. The work was undertaken by Shri Sardari Lai of the Frontier Circle of the Survey. The objectives of this season's dig were to lay bare the plan of the dwelling-pit complex of Period I, which had been exposed in the previous season. The dwelling-pit complex, revealed three structural phases (pl. XXX), the noteworthy feature being that the pit of each successive phase became larger in size. Each structural phase is associated with post-holes and storage pits along the periphery. The whole structural sequence was found sealed by a compact floor of mud mixed with ash and charcoal which incidentally represents the lowest habitational layer of period II. This is followed by successive deposits, the general pattern of stratigraphic evidence being in conformity with the sequence already known. Section trimming at the north-western toe of the mound revealed a number of dwelling and storage pits. In one of the pits, a complete horn of a stag was encountered. Antiquities obtained from the excavation include two copper rings, a copper needle, number of bone points and polished stone-axes.

34. EXCAVATION AT HARWAN, DISTRICT SRINAGAR.—Shri L. K. Srinivasan of the Frontier Circle of the Survey, assisted by Shri Sardari Lai, undertook a small-scale excava tion at the famous Buddhist site of Harwan, where an earlier structural phase had been

exposed. In order to fully understand the structural sequence and its inter-relationship, excavation was conducted both on the outer and inner sides of the structure, particularly towards the north-western and north-eastern corners. The excavation revealed that the outer face of the northern side wall above the ground level, commencing from the north-eastern corner, is not in conformity with the outer face of the same wall below the ground, inasmuch as the former is leaning out of plumb by about 40 cm, indicating that there has been a later reconstruction or restoration without any relation to the alignment of the structure underground. This observation is further confirmed by the fact that the internal and external faces of the wall underground show diaper-pebble construction (pl. XXIX C); the wall above ground level has dry rubble construction on the inner face only. The northern wall below the ground level has no gap for the entrance, but the wall above the ground has an entrance. A small cell, measuring 2.30 x 1.20 m, has been exposed within the enclosure on the north-western corner.

KARNATAKA

35. EXPLORATION IN DISTRICTS BIJAPUR, GULBARGA AND RAIGHUR.—The Director of Archaeology and Museums, Karnataka, continued explorations in the submerging areas of Almatti and Narayanpur Dams of the Upper Krishna project. The sites at Amargol, Badardinni, Herkal, Junjargadda, Kudalasangama, Mailgadda, Palguladinni and Talgundi yielded Middle Stone Age implements, viz. scrapers, points, bifacial blades, parallel-sided blades and cores. Amargol, Badaradinni, Havargi, Hire-Javour, Ital, Mugalalli, Rakkasgi, Tangadgi and Tondihal yielded Black-and-red Ware and red ware, while Russet-coated White-painted Ware was found at Badadinni, Hire-Gulbal, Hal, Tangadgi and Tondihal. The site at Marol yielded Black-and-red, red and Russet-coated White-painted Wares.

Sangamesvara temple at Chiksangam belongs to Chalukyan period. The *garbha-griha* has *udbhava-linga.* The doorway consists of five elegant *sakhas.* The *makara-torana* consists of the images of Brahma, Siva and Vishnu. The pillars are elegantly carved but unfortunately white-washed. Sula Brahma is found on the lintel of the eastern doorway.

The early historical site at Sannati, Chitapur Taluk, District Gulbarga, yielded a large number of excellent terracotta figurines. Among other important finds mention may be made of limestone sculptures with Brahmi inscriptions of the first-second century A.D.

The exploration in the Bhima valley brought to light ancient sites at Dandavati, Devanbeguru, Hagargundi, Hijjargi, Malkudhal, Mudbal, Nanatarhal, Sardgi, Sirivala and Tenglihal.

36. EXCAVATION AT VADAGAON-MADHAVAPUR, DISTRICT BELGAUM.—The Department of Ancient Indian History and Epigraphy and Kannada Research Institute, University of Karnataka, Dharwar, continued excavation (1972-73, p. 26), under the direction of Drs B. K. Gururaja Rao and A. Sundara.

Excavation in Trench 3 at Site 1 revealed that a east-west running wall standing to an extant height of six to eight courses of bricks and available to a length of 3 m was disturbed by a huge pit in the eastern part. Another stump of a wall further south was also found disturbed by the above pit. A brick-paved floor and a rectangular (140 x 1 m) brick structure, possibly a sewage pit, which has been exposed to a depth of 7.25 m, were encountered in Trench 3 A.

In Trench 3 of Site 2, a house (pl. XXXI A) with two rooms opening to a common verandah was exposed. The size of the bricks used is 35 x 25 x 10 cm. In the wall between the verandah and the eastern room were found post-holes for the door-jambs. To the east of the complex was seen an earlier wall running parallel, but with a 20-cm gap which was filled with brick bats and hard clay. Further to the east of this wall were found two circular and one rectangular pits (pl. XXXI B), the former being used perhaps as soakage pit and the latter one as a well which was exposed to a depth of 12 m without reaching its bottom.

Trench 2 at Site 3 was taken on the eastern edge of the moat where a structure of eight courses of bricks was exposed. The structure appears to be prior in date to the digging of the moat.

Among the antiquities mention may be made of about one hundred and fifty lead coins, probably of the Satavahana times, two punch-marked copper coins, a few broken terracotta animal figurines and one ivory figurine of Lakshmi standing on lotus, probably belonging to the late medieval period.

37. EXPLORATION IN DISTRICTS NORTH KANARA, SHIMOGA AND SOUTH KANARA.—Dr A. Sundara of Department of Ancient Indian History and Epigraphy, University of Karnataka in the course of exploration in District South Kanara, visited a rock-cut cave at Bommara Bettu in Udipi, previously noticed by Dr P. Gururaja Bhat, Principal, Milagrase Arts and Science College, Kallianpur. The cave was perhaps a megalithic hemispherical chamber, circular on plan, with an opening at the top. He also collected megalithic Black-and-red Ware sherds from the disturbed burials at Vaddarase at Belur, both near Coondapura. Besides, he discovered early historical habitation sites with remains of brick structures at Hattiangadi, near Coondapur, Haigunda in Taluk Honnavar, District North Kanara, Malavalli and Talagunda in Taluk Sorab, District Shimoga. Of these, the site at Haigunda yielded: a colossal standing Yaksha, about 1.80 m in height, of the first-second century A.D. ; a dwarf Yaksha figure (pl. XXXII); Janardhana form of Mahavishnu belonging to *circa* fifth-sixth century A.D. ; Siva-*lingas*; and a brick-lined square well with off-sets at regular intervals on the sides. In Hosnagar, a set of copper plates, three in number, with a ring bearing lion seal, of Banavasi Kadamba Mrigesvarma, was brought to light. The record mentions a land grant made by the king to a Brahmana of Bharadvaja *gotra,* Nagasvami by name. At Talagunda, a seated female figure perhaps a Yakshi, chara cteristic of the second-third century A.D. and seated Narasimha of *circa* fifth century A.D., both in round relief, are particularly noteworthy.

38. EXCAVATION AT BANAHALLI, DISTRICT KOLAR.—Shri K.V. Soundara Rajan, assisted by Shri C. Krishnamurthy of the Southern Circle of the Survey, conducted trial digging at the neolithic site, with a view to knowing the possible relationship of the burnished grey ware with other wares. The excavation yielded a two-fold sequence in which the earlier was represented by pure neolithic occupation with burnished grey ware and a few microliths and the latter by the megalithic culture.

KERALA

39. EXPLORATION IN DISTRICT IDIKKI.—Shri S.P.Tampi, a Research student at the Deccan College Postgraduate and Research Institute, Pune, in the course of preliminary

exploration in the Koodakadu nullah in the Marayoor Range Reserve Forest area, under the guidance of Dr Z.D. Ansari, discovered two rock-shelters formed in granitic rock. One of these shelters is in the hills in the vicinity of Marayoor village. On the walls of the shelter were found paintings in brown and white colour depicting human and animal figures like elephant, antelope, horse and cattle. In the subsequent work in the same area he discovered a few microlithic blades and cores made of chert and quartz. The second shelter lies at a distance of about 8 km further interior from Marayoor and also contained paintings.

40. EXPLORATION IN DISTRICT PALGHAT.—In continuation of the last year's work, Prof. R.V. Joshi, assisted by Shri P. Rajendran, Research student, Deccan College Post-graduate and Research Institute, Pune, undertook a detailed study of the course of the Bharatapuzha from Palghat to Ponnani and the sediments exposed in the dam-excavation at Kanhirapuzha and Malampuzha. During the last year's field-work some Stone Age tools on hornblende gneiss, veined quartz and crystalline quartz, similar to those of Teri industry, had been collected by Shri Rajendran.

The Bharatapuzha valley throughout its entire course is heavily silted and rarely one comes across any gravel or coarse sand deposit. It is, however, flanked on both banks by alluvial terraces, two of which are quite distinct. The Kanhirapuzha and Malampuzha, its northern tributaries near Palghat, have rather different land-forms. Both these streams lie in the hilly tract and their valleys are narrow. In the exposed section can be seen pebble deposits at the base superimposed by a series of sand and silt beds.

The dam-construction project at Kanhirapuzha provided opportunities for the study of the entire section from the base of the river valley through the higher laterite surface on which stands the Inspection Bungalow—a section nearly 20 m depth. From the Bungalow towards the river it revealed the hard laterite cap of 15 m underlain by laterite clay of about 3 m and again a hard laterite bed of 3 to 4 m thickness. Below this was a 0.50 m thick layer of sand and pebble which rested on the gneissic rock of the area. Near the river was seen a coarse pebbly and bouldery bed at the base followed up by a pebbly gravel and topped by red lateritic clay and soil. A few choppers on vein quartz were found at this site.

Near Malampuzha dam-site are exposed secondary lateritic fine gravel and sand in the sections of which were found numerous quartz (both vein and crystal) flakes, cores, choppers and a few blades. Among these are a few retouched flakes and blades and finished tools like crescents. Other tools are awls and borers and a few simple points comparable to Megnanapuram Teri industry from Tamil Nadu.

MADHYA PRADESH

41. EXPLORATION IN DISTRICT BILASPUR.—During the course of exploration Shri I.K. Sarma of the South-eastern Circle of the Survey noticed at villages Gudikhar and Malhar ancient vestiges of a wide and varied nature. At Malhar, notable for its sculptural wealth, the elliptical fort, encircled by a moat, has a circular citadel of smaller dimension. Unique copper, lead and potin coins, some of them bearing symbols like elephant, Ujjain-symbol, peacock and Karttikeya may be assigned to pre-Christian era. A few silver punch-marked coins were also found in the basal layers of the fortification. The sculptural wealth of the place, datable to *circa* second century B.C. to twelfth century A.D. belongs variously to Buddhist, Jaina and Brahmanical pantheon.

Close to the above place yet another site with a number of temples and sculptures belonging to the Buddhist (Vajrayana) and Jaina faiths was located at Gudikhar. Microlithic blades and fluted cores of chalcedony and chert from the nearby areas of the fortifications indicate the existence of a protohistoric occupation at the site.

42. EXPLORATION IN CENTRAL NARMADA BASIN.—Dr G.L. Badam of the Deccan College Postgraduate and Research Institute, Pune, during the course of exploration in the area, discovered a rich assemblage of fossils including *Elephas, Stegodon, Hippopotamus, Bos, Bubalus* and *Cervus,* belonging to the middle to the late Pleistocene period. Stone Age tools were also collected in association with the fossils which in turn would help in fixing the chronology of the Early Stone Age and Middle Stone Age horizons in the Narmada basin.

43. EXPLORATION IN DISTRICT REWA.—Prof. G.R. Sharma, of the Department of Ancient History, Culture and Archaeology, Allahabad University with assistance from Dr R.K. Ranjit Singh, undertook exploration in the District and brought to light: Middle Palaeolithic sites at Billighat, Kakarahia and Misirpur; Upper Palaeolithic sites at Billighat, Bullahawa, Dhaunaha Nala, Karkarahia, Kharahia (Bataskunwar), Misripur, Rojari and Sattichaura on the Kaimur range, all situated within 8 to 10 km to the north west of Hanumana; rock-shelters and cave paintings at Batas Kumar Salauya and Billighat, the former yielding also microliths. The paintings are in red and white pigments showing representations of animals, abstract symbols and geometric designs. The Middle Stone Age tools of the region are smaller in size than those from the sites in District Allahabad, indicating a later date for the tools in District Rewa.

In the vicinity of Sattichaura were noticed a number of earthen tumulus often covered with stone chips. The nature of these mounds, however, remains to be determined.

MAHARASHTRA

44. EXPLORATION IN DISTRICT AHMEDNAGAR AND PUNE.—Following a preliminary exploration on the Ghod river, a tributary of the Bhima, Prof. R.V. Joshi and Shri M.D. Kajale of the Deccan College Postgraduate and Research Institute, Pune, undertook exploration of the Ghod valley from Ambegaon to Dhond, a stretch of 150 km. It may be recalled that earlier exploration around Inamgaon had yielded animal fossils and a large number of tools of the Middle Palaeolithic and Mesolithic Age. The objectives of the present exploration was to establish the stratigraphy from the stone age to chalcolithic times and to know the present and past environment of the Ghod valley. Alluvial sediments, especially the buried clays, were collected from Inamgaon, Annapur and Ambegaon, and analysed for their pollen content. However, none of them yielded any appreciable number of pollen grains and spores, useful for constructing pollen diagrams. The reconstruction of palaeoecological conditions, on the basis of pollen studies, as yet seems to be impossible in this region. The modern vegetational climates encountered in the explored region can be illustrated as under.

The lower Ghod valley near Dhond falls under semi-arid type of climate showing tropical thorn savanna vegetation dominated by grasses and thorny shrubs. The next vegetational zone is near Inamgaon characterized by tropical woodland type of vegetation.

The vegetation of this region has been studied in detail with a view to comparing some of the chalcoltihic botanical findings. The next vegetational zone was around Sirur (Ghod-nadi) where also the grassland and herbacious vegetation predominates. In the upstream regions near Ghodegaon and Ambegaon the climate is sub-humid and the flora is typically wet decidious.

The sediments exposed in the various sections on this river consist of a basal, partially consolidated pebble bed of 2 to 3 m thickness which rests on the Deccan trap rock. The pebble-bed is overlain by 3-to 5-m thick yellowish white silty sand which in most of the sections is highly *kankary* and in turn is overlain by brownish finely laminated sub-recent silt of 2-to 3-m thickness, free from *kankar.* On the top is black soil: well-defined sections were observed at Dhond, Sangwi, Kashti, Inamgaon (pl. XXXIII A), Sirasgaon, Chinchni, Annapur, Chandoli, Kalamb, Ghodegaon and Ambegaon. Well-preserved fossilized bones were found in Pleistocene gravel at Annapur, Chinchni, Inamgaon, Kalamb and Sirasgam. These fossils have been tentatively identified by Dr G.L. Badam of the Deccan College. The fossil-assemblage includes *Elephas, Bovidas, Cervids, Cornivar, Equids, Hippopotamus,* indicating tropical savanna type of palaeoecological condition in the late Pleistocene period.

At Annapur and Chinchni, fresh water molluscan shells were obtained from the sandy pebbly gravel some of which belong to the species of *Unio.*

While no genuine Lower Palaeolithic tools have been found in this area, several Middle Palaeolithic tools were obtained from Annapur, Chinchni, Dhond, Inamgaon and Sangwi. The tools are made on chert, jasper, chalcedony and consist of scrapers, borers, points and a few blades. Late Stone Age tools were also found at all the above-mentioned localities, common types being blades, scrapers, points, crescents, burins and fluted cores.

45. EXCAVATION AT BHOKARDAN, DISTRICT AURANGABAD.—In continuation of the last year's work (1972-73, pp. 20-21), Prof. S.B. Deo, Department of Ancient Indian History, Culture and Archaeology, University of Nagpur, in collaboration with the University of Marathwada, Aurangabad, excavated at a site in Md. 1 and confirmed the last year's sequence. The result of the excavation may be summarized as: Period I A—Early or Pre-Satavahana; Period I B—Late Satavahana/Kshatrapa, and Period II—Post-Kshatrapa.

Period I A yielded punch-marked coins, black-and-red ware, and remains of mud walls, hearths and lime-floors. Period I B comprised Satavahana and Kshatrapa coins as also scores of terracotta bullae along with sherds of amphorae, Megarian and the Red Polished Ware. The structural remains comprised houses with pebble foundation, walls of baked bricks and roofs, probably supported by wooden posts and covered with tiles. Hundreds of beads of semi-precious stones, terracotta figurines and shell bangles were recovered. However, the most outstanding find in the lower horizons of Period I B was an almost intact ivory figurine with facial features completely worn out. The main central figure with an elaborate arrangement of hair, arranged in four braids, each having tassel at the end as in the case of the famous Ter ivory, is flanked on either side by a female attendant. The Bhokardan ivory is the second specimen from the excavation recovered in well-dated horizons.

Period II is represented by a few sculptures in the Gupta idiom. Pieces of Chinese Celadon Ware, glazed pottery and polychrome bangles belonging to later period were also obtained from the site.

The digging in adjacent mounds like Mahankal revealed the same sequence. However, there was abundant evidence of medieval habitation on these mounds as evidenced by the occurrence of Muslim and Maratha coins.

46. EXPLORATION IN DISTRICT CHANDA.—During the course of exploration, Sarvashri I.K. Sarma and D. Hanumantha Rao of the South-eastern Circle of the Survey discovered a microlithic factory site at Ramdigi on the banks of a nullah. The tools included both geometric and non-geometric types, made on jasper, chert and chalcedony. The assemblage is devoid of any pottery. The microliths of similar types were picked up from Chek-Kesambi, Lalpeth and Selur, all in Chanda Taluk.

Megalithic stone-circles were noticed at Ghek-Kosambi and Selur. An Early Stone Age site was noticed at Mohra on the left bank of the Andhari, a tributary of the Wain-ganga. Bifacial handaxes and cleavers constitute the dominant tool-types. On the bank of Wainganga an extensive mound, south of village Ashti, revealed chalcolithic and early historical assemblages yielding the Black-and-red Ware, hand-made grey ware and short blades.

47. EXPLORATION IN DISTRICT DHULE.—Shri S.A. Sali of the South-western Circle of the Survey, made interesting geomorphological observations in the Tapti valley which throw further light on the depositional processes in this river valley particularly in the later part of the late Pleistocene. Between Torkhed and Bingona, both in Shahada Taluk, on the right bank of the Tapti, a series of sites with a couple of intervening brown horizons, perhaps fossil soils, lie against an older set of deposits. This older set of deposits does not seem to be earlier than the Middle Palaeolithic period as is indicated by a few artefacts recovered from the gravels occurring in its lower level.

At Sarangkheda, Shahada Taluk, the Tapti alluvium was seen preserved in patches on the top of basalt outcrops at a height of over 152.4 m above Mean Sea-level and over 3048 m above the present bed of the Tapti. The extant patches of alluvio-colluvial gravel preserved on the slope of one of the outcrops here contain fresh artefacts, belonging to either late Upper Palaeolithic or the Mesolithic. The artefacts mainly include debitage and only occasionally fluted cores and blades, chiefly on chalcedony. The fresh nature of the artefacts and their occurrence in large quantity suggest that the site represents a 'factory site'.

A site with microliths, chiefly on chalcedony, was discovered at Boradi, Shirpur Taluk, on the bank of the Ambad nullah.

A chalcolithic site was discovered at Sarangkheda, Shahada Taluk, on the right bank of the Tapti. Besides a rubber stone and a few fluted cores, the site yielded pottery of (i) Savalda ware, (ii) Late Harappan ware, (iii) black-and-grey ware, (iv) burnished grey ware, and (v) thick coarse ware with incised and applique designs. Stray pottery of the chalcolithic period was also collected at Hingona, Shahada Taluk, at the base of a cliff.

48. EXCAVATION AT YESAR, DISTRICT DHULE.—In continuation of the excavation work at the palaeolithic site at Bhadne on the river Kan, near Sakri (1965-66, p. 29), Prof. R.V. Joshi of the Deccan College Postgraduate and Research Institute, Pune and Shri B.P. Bopardikar of the Prehistory Branch of the Survey conducted excavation at Yesar on the left bank of the same river, a little downstream of Bhadne village, to trace the Stone Age tool-bearing horizons in the river basin. The series of trenches taken near the waterfall shows highly weathered Deccan Trap at the base near the water-level which was covered by a metre-thick deposit of red or pink sandy clay, followed by bouldery sub-rounded heterogeneous and partially consolidated gravel, with coarse sand and red clay lenses. On this rests reddish sandy clay similar to red marl. The last two deposits were highly calcified, showing numerous veinlets of calcium carbonate. On the top was a fine sandy deposit with little clay which yielded microliths.

At a locality downstream of Yesar, where, during the exploration on the left bank of the river (pl. XXXIIIB) in the nullah, a large number of little-weathered Lower Palaeolithic tools had been found, the excavation revealed, from the bottom upward, a pebbly bed containing well-rounded and heavily weathered trap pebbles with a few patches of brown sand, covered by a 2-m pink sandy clay, which is exposed at the base on the nullah cuttings. These are pre-Pleistocene heavily weathered deposits. A thin bed of gravel lies over the above-mentioned deposit which is further covered at the top by the Lower Palaeolithic tool-bearing brown sandy silt, all these being fluvial deposits.

On the river banks are exposed sub-recent but comparatively younger deposits like bouldery gravel and clays which rest against the earlier tool-bearing sediments. These younger beds are deposited by the stream, perhaps in a lake-like depression when the water-level should have stood at almost 13 m above the present river bed as evidenced by the occurrence of cross-bedded sands in the top trench, as well as in another trench dug on the top of the mound near the waterfall.

Over the sandy clays, yielding Lower Palaeolithic tools, are layers of similar clay deposit, containing Middle Palaeolithic industry. These clays are exposed in the gullies adjacent to the nullah and the river bank. The top sandy clay contains mesolithic tools.

The topmost brown sediment does not show humus-rich soil horizon. This deposit is thus an immature soil material which bears only scrub vegetation. The sediments obtained from the excavated trenches and naturally-exposed sections have been studied in the laboratory. The sediments show riverine mode of deposition. The nontool-bearing basal pink deposit is a sandy silt. It shows better sorting than the tool-bearing sediment. The later younger deposits are coarse sub-rounded to sub-angular and unsorted and are derived from the adjacent areas. It is like fan-travel, laid down during floods.

The finished tools consist of cleavers, handaxes and choppers. Other types include flakes of various sizes and cores. All cleavers and handaxes are made on flakes. The majority of cleavers are on end-flakes while others are on side-flakes or on flakes in which the bulb occurs obliquely. The size of the tools and their technological characters indicate late Acheulean stage of the industry.

The end-flakes, side struck flakes and bulb obliquely situated are absent from the collection.

49. EXCAVATION AT PANHALE KAJI, DISTRICT RATNAGIRI.—In continuation of the last year's work (1972-73, p. 95), the Director, Department of Archaeology, Government of Maharashtra, through scientific method of debris clearance, exposed ancient caves with sculptures belonging to Brahmanical, Buddhist and Jaina sects. Near Devaranwadi two rock-cut caves, a *vihara* and a Brahmanical cave with inner room, hall and verandah were brought to light. Stylistically, the caves belong to *circa* eleventh century A.D. Besides pottery, the antiquities recovered include one terracotta lamp, polychrome glass bangles, etc.

PUNJAB

50. EXPLORATION IN DISTRICT LUDHIANA.—Shri Devendra Handa of B.T.T. College, Sardarshaha (Rajasthan), in the course of exploration in the District located the following sites.

(*LH=Late Harappan; OCP= Ochre Coloured Pottery; PGW=Painted Grey Ware; BSW= Black-slipped Ware; BRW=Black-and-red Ware; SK=Sunga-Kushan Pottery; EH = Early historical Pottery; RP=Red Polished Ware; MG=Muslim Glazed Ware;* and *M=Medieval Wares.*)

District	*Taluk*	*VillagejSite*	*Period*
Ludhiana	Samrala	Bahlolpur	MG, M
-do-	-do-	Bassigujaran	M
-do-	-do-	Baundal	PGW, SK, EH, MG, M
-do-	-do-	Chandiala	PGW, BSW, EH, RP, M
-do-	-do-	Khera	LH, OCP, BSW, BRW, MG, M
-do-	-do-	Khirnaian	M
-do-	-do-	Kiri Afghanan	M
-do-	-do-	Kotala	M
-do-	-do-	Sihala	EH, M

51. EXPLORATION IN DISTRICT ROPAR.—Shri Devandra Handa of B.T.T. College, Sardarshaha (Rajasthan), in the course of exploration, discovered an ancient habitation site, yielding early historical red ware, Muslim glazed pottery, coarse grey ware, etc. Five square and three rectangular punch-marked coins and three other, one each of Vasudeva Krishna, Bahlol Lodi and Aurangzeb, were collected from the site.

RAJASTHAN

52. EXPLORATION IN DISTRICTS BUNDI AND TONK.—During the course of exploration, Shri Brij Mohan Singh Parmar, assisted by a team of the Department of Archaeology and Museums, Government of Rajasthan, discovered early historical sites at Bajar, Bhanjori, Daglavda and Deyi in District Bundi, and Choru and Dasir Gamri in District Tonk. Besides one hundred sixty sculptures, representing various Hindu deities and Jaina Tirthankaras, and ranging in date from *circa* second century A.D. to eighteenth century A.D. were brought to light. Notable among them are those of *Matrikas,* male figures, parents of the Jina, a panel depicting couple in amorous pose and celestial damsels. Medieval temples were discovered at Cheta, Devali, Dev Jhar, Deyi, Durgari, Karwar Pagara, Khatkar, Keshav Rai Patan, Lakheri and Vempa and studied in detail. The survey brought to light some wall paintings of eighteenth-nineteenth century A.D. inside the *Havelies* and temples at Bundi Durgari and Karwar, all in District Bundi. Some interesting religious themes, muscial modes, *Baramasa* and the portraits of Uniara, Bundi and Kota chieftains were noticed in the palaces at Toda Rai Singh, Nagar and Uniara in District Tonk.

53. EXPLORATION IN DISTRICTS JAIPUR AND SIKAR.—Shri Vijay Kumar of the Department of Archaeology and Museums, Government of Rajasthan, explored the area between Bhabru in District Jaipur and Dabla in District Sikar on Haryana border, drained by the river Sabi and its tributaries, and located the following sites

(*OCP=Ochre Coloured Pottery; PGW=Painted Grey Ware; BRW=Black-and-red Ware; RW=Red Ware (Kushana);* and *TC=Terracotta.*)

District	*Village/Site*	*Period*
Jaipur	Amai (old Amaravati)	OCP
”	Baliji	”
”	Bhabru (Sonpura)	”
”	Bhaishlana	”
”	Bhomya Ka Tiba	”
”	Buchobharat	OCP, BRVV, RVV
”	Budha	PGW, RW
”	Daduka	OCP, PGW, RW
”	Dhar	OCP
”	Kilayanpura 'B'	”
”	Kiratpura	”
”	Lalbaba	”
”	Malion Ka Tiba	”
”	Manju Kota	”
”	Panditpura	PGW, BRW
”	Rajnota 'B'	RW, TC
”	Rana Ki Radi	OCP
”	Taskola	”
”	Theekariya	OCP, Microliths
Sikar	Dhunga Ka Nangla	OCP
”	Tigri	OCP

54. EXPLORATION IN DISTRICT NAGAUR AND PALI.—Shri Sureshwaranand of the Department of Archaeology and Museums, Government of Rajasthan, in the course of exploration, discovered early Pratihara temple of the eighth-ninth century A.D. at Anand Pur Kalu, Tehil Jai-Taran in District Pali and Shudrasan in District Nagaur which have striking affinity in plan and sculptural representation with the Osian group of temples. Besides, two restored shrines of the twelfth century A.D. known as Jagannath and Char Bhuja temples respectively, were noticed at Nagari in District Pali.

TAMIL NADU

55. EXCAVATION AT NANGANALLUR, MADRAS.—Shri K.V. Soundara Rajan, assisted by Shri T.S. Iyengar, of the Southern Circle of the Survey conducted trial excavation at the site, 25 km from Madras, where sculptures in sandstone and granite of Narasimha, and a huge *linga,* datable to the Pallava period (ninth-tenth century A.D.) were found. The site is located near the Pallavaram cave of Mahendravarman times. The digging revealed a structure having *adhishthana* in granite and upper mouldings of *tripatta-kumuda,* etc. in laterite blocks, laid in lime mortar. The temple (pl. XXXIV) has a cella, measuring 5.8 m long and 6.1 m wide and an *ardha-mandapa* 2.85 m long and 5.28 m wide. The entrance is on the east. The southern *adhishthana* bears in three line Chola inscription of tenth-eleventh century A.D. Stylistically, the temple may be dated to the Pallava period.

56. EXCAVATION AT PALACE SITE, GINGEE FORT, DISTRICT SOUTH ARCOT.—Shri K. V. Soundara Raj an, assisted by Shri K. P. Balakrishna of the Southern Circle of the Survey, through debris clearance at the Palace-mound at Rajagiri, exposed a structure measuring 12.5 x 10.06 m divided into three bays by rows of pillars at intervals of 2.4 m. The structure consists of a central room, measuring 5.8 m square, enclosed by a verandah all round. It might have served as the Audience Hall of the local Hindu chieftains.

57. EXCAVATION AT KAVERIPATTINAM, DISTRICT THANJAVUR.—Shri K. V. Soundara Rajan, assisted by Shri T. S. Iyengar of the Southern Circle of the Survey resumed excavation at the *vihara-site* and exposed a huge structure having a square plan built in *pancharatha* style with recesses and projections on three sides and having entrance on the east. It is a hollow square besides squares on the cardinal directions. The structure had been plastered. The structure dated to the seventh-eighth century A.D. may be compared with the *stupas* of Nagapattinam. The antiquities recovered include terracotta human and animal figurines, stucco *yali* and other objects. Besides medieval pottery, one fragment of painted sherd depicting a hand holding a lotus was also found.

UTTAR PRADESH

58. EXPLORATION IN DISTRICTS ALLAHABAD, MIRZAPUR AND PRATAPGARH.—Prof. G. R. Sharma, Head of the Department of Ancient History, Culture and Archaeology, University of Allahabad, with assistance from Dr R. K. Verma and Sarvashri V. D. Misra, B. B. Misra, D. Mandal and Ranjit Singh, conducted exploration in the river valleys of the above districts, in the central Ganga valley, and brought to light a number of sites belonging to the Lower, Middle and Upper Palaeolithic cultures.

A good number of stone implements consisting of handaxes, cleavers, scrapers and chopper-chopping tools were collected from the beds of the rivers Belan and Seoti as well as from the factory sites explored earlier, like Chhatarpalia, Koskangarha, Ramgarhwa on southern slope, Etaha and Nawa.

Middle Palaeolithic tools were collected from Bagaihawa (Koldihwa), Gadarahawa, Khajahawa, Orawa Sector II, west of the previously reported site and Parsidhia, all situated on the slopes of the Ramgarh hill, Savanaha and Mothaha in District Allahabad. The sites explored earlier were also revisited and collections made therefrom. The majority of tools of these sites are on quartzite.

Upper Palaeolithic implements were collected from Charki (factory site) and Leorahia (Koldihwa) on an outcrop of the Ramgarh hill, Badauan Kalan, Dominha (Deoghat) and Orawa Sector II in District Allahabad. Of the tool types, mention may be made of blades (retouched and blunted back), scrapers, points and burins, made on cherty meterial. The tools are highly patinated.

Microliths, besides cores, and flakes were collected from Charki, Jalahalia, Koldihwa Sector II, Lakhahar, Lakhanpur, Leorahia (Koldihwa), Muralipur, Mohahawa Nullah, Orama Sector II, Parsidhia, Sehataghat, Sundarpur and the western foot in trans-Belan region in District Allahabad. Of these, Sehata and Jalahalia have yielded geometric shapes on cherty material. The remaining sites yielded non-geometric implements on chalcedony, agate, carnelian, etc.

Rock-shelters were discovered at Chandawa, Kabara, Lakhahar and Lutmy hillocks of the Kaimur in Districts Allahabad and Mirzapur. Paintings executed in red or white pigments on the ceiling and side walls have been observed in these rock-shelters. The

painted scenes show animals such as deer, Neelgai, bisons, reptiles, birds, some abstract symbols and geometric designs.

Shri D. Mandal of the Department of Ancient History, Culture and Archaeology, University of Allahabad, in collaboration with the Department of Scientific Research and Cultural Affairs, Government of Uttar Pradesh, under the general supervision of Prof. G. R. Sharma, explored an area covering 600 sq. km around Sarai Nahar Rai in District Pratapgarh, and brought to light sixty-two Mesolithic sites of which Balapur, Bharbhari-Ka-Purwa, Bhusauri, Chauras, Gosaipur, Jagapur, Hainsi Parjiya, Kamasin, Lehra, Makhni, Naganpur, Pura Sukhdeopur, Saikhpur, Sarai Mahasingh, Saraisojan Soja, Saraiya, Tilokpur and Usrapur, are more promising. The finds collected from these sites consist of cores, flakes and finished tools, made on chert, quartz and other fine grained stones, viz. chalcedony, carnelian, agate, etc. Geometric tools were collected from Bharbhari-Ka-Purwa, Sarai Mahasingh and Saraiya.

Shri Bimal Chandra Shukla, student of the Department of Ancient History, Culture and Archaeology, University of Allahabad, during the course of exploration noticed an early historical mound yielding Northern Black Polished Ware and associated red ware, Saka-Parthian terracottas and two beautiful small human heads on stone at Raki in District Pratapgarh.

59. EXCAVATION AT ANAND BHAWAN CAMPUS, ALLAHABAD, DISTRICT ALLAHABAD.— Following trial digging for a foundation, Prof. G. R. Sharma of the Department of Ancient History, Culture and Archaeology, Allahabad University, conducted trial excavation to ascertain the culture sequence at the site. The excavation revealed that out of 1.60 m thick deposit exposed, the top 65 cm belongs to modern times, and the underlying 95 cm to the early Medieval period, yielding glazed and other contemporary pottery, noteworthy types being bowl with externally bevelled rim, tapering side and thickened base, shallow dish with internally thickened and splayed out rim, and carinated *handi.* Other important finds include glass bangles and beads. A covered drain, 15 cm in width and 17 cm in depth, of the early Medieval period was also exposed. While the flooring and the covering of the drain are of stone slabs, the walls are of *lakhauri* bricks plastered internally. The natural soil could not be reached.

60. EXCAVATION AT KOLDIHWA (DEOGHAT), DISTRICT ALLAHABAD.— At this important site of Koldihwa Prof. G. R. Sharma of the Department of Ancient History, Culture and Archaeology of the University of Allahabad, excavated the eastern and western mounds. In one of the trenches, AI-A, Upper Palaeolithic blades and shells were encountered in Gravel III at a depth of 6.75 m from the surface. The excavation on the eastern mound revealed a habitational deposit of 1.90 m, divisible into neolithic, chalcolithic and iron age cultural phases.

The neolithic culture is represented by handmade, ill-fired dull yellowish ware in thick fabric, besides a few sherds of red, black-and-red and net-impressed wares. The last mentioned is generally found in thick fabric though sherds in thin fabric are not wanting. Straw and husk have been used as degraissant, which'after firing have resulted in cavities on the surface. Some of the red ware vases seenTto have been made on slow-wheel or turn-table; the shapes include deep and straight-sided bowls, lipped bowl, vase with carinated neck, deep trough, basin, storage jar and dish-on-stand. Although no painting has been found on any of the sherds, some of them seem to have been dressed both externally and internally with a ochre slip. Most of the vases show chord impressed decoration. Incised

decorations consist of designs with criss-cross, zig-zags, oblique strokes, horizontal, vertical or oblique parallel lines.

The lithic implements are represented by neolithic celts, ring-stones and microliths. The microliths are made on cherty material. Bone tools and metal are conspicuous by their absence. A number of animal bones have also been recovered from the phase, but the species have not so far been identified.

The occupation of the chalcolithic culture at Koldihwa does not mark a break with the preceding neolithic stage, but shows continuation of the life-style with qualitative improvement and certain changes in subsistence. Now the bulk of the pottery is wheel thrown. The red, black-and-red and black-slipped wares occur in greater frequency, with a number of sub-groups in red ware. In addition to the ceramics of the preceding culture, some new types are introduced in this phase such as funnel-shaped lid, perforated vessels, pedestalled vase, etc. Some of the pottery showed painted designs in black, such as thick parallel bands, zones, lozenges, strokes and zig-zags. The incised and applique designs of the neolithic culture, however, were found to continue. Bone tools and copper make their appearance for the first time in this period. A number of bone arrow-heads, both socketed and tanged were found. Microliths are represented by short blades, crested-ridged blades and cores. Ground stone axes were also found. The inhabitants must have lived in houses made of wattle and daub as suggested by post-holes and burnt pieces of clay bearing reed impressions. The antiquities recovered from this level comprise beads of copper, semi-precious stones, bone and terracotta, pieces of footed quern, muller, terracotta gamesmen, circular stone pieces, probably used as weights, etc.

The chalcolithic culture at Koldihwa is ascribable to the middle of the second millennium B.C. and the neolithic which preceded it to the first half of the second millennium B.C.

The Iron Age is marked by the occurrence of iron implements, such as axe and arrow-heads, besides, crucibles and iron slags. Except for iron, other material equipment of this period is same as that of preceding culture.

61. EXCAVATION AT PIPRAHWA, DISTRICT BASTI.—In continuation of last year's work (1972-73, p. 33), Shri K. M. Srivastava of the Excavations Branch, Nagpur ot the Survey, undertook excavation at the site with the primary objective of locating the habitation area of ancient Kapilavastu.

The excavation revealed that the habitation lay hardly at a distance of hundred metres to the west of the *stupa* and the monasteries. A large house with sixteen rooms built in three phases (pl. XXXV A) was exposed at this site. The main walls of tmsstructure are 1.00m in thickness while the partition walls are of 70 cm in thickness When this house was completely in ruins, monastic cells were built in two stages (pl. XXXV B). But for pottery, no important antiquity was obtained from the levels associated with the house complex. The monastic cells of the first phase however, yielded more than twenty burnt clay sealings bearing letters in Brahmi script, which on Paleographical basis can be dated to first century B. C. The sealings, however, are very fragile. The monastic cells were built around a central courtyard and a verandah of baked bricks. The approach to the monastic cells (pl. XXXV B) was from the eastern side through a flight of steps. On the basis of pottery it was observed that the occupation in the area came to an end much earlier than the monastery

Excavation was continued in the eastern monastery; it yielded backed clay sealings (pl. XXXVII C) last year. The monastery is quadrangular m plan consisting of thirty-three

cells. The cells are built around a central courtyard with a verandah (pl. XXXVI). Remains of wooden pillars in the walls at regular intervals indicated a tile roofing. A large quantity of burnt rice was obtained from various cells. The floor of the monastery was laid with rammed brick-bats and lime plaster. The entrance of the monastery was from the western side through a flight of steps. The two projecting cells at the entrance were enclosed by a boundary wall. This eastern monastery was built in four phases. In the last two phases, the plan was as described above, but in the earlier two phases, the verandah was restricted only to the entrance. The outer wall of the first two phases was used as the inner wall in the subsequent phases.

Of all the seal impressions, the most remarkable is that on the lid of a pot (pl. XXXVII A). Amongst other important antiquities, mention maybe made of: copper *thali* and bowls; iron pan, hook, nail and sockets; Kushan and Ayodhya copper coins; punch-marked coins, both in copper and silver (pl. XXXVIIB); copper antimony rod and a borer; stone beads; terracotta and carnelian beads; a terracotta mask; and fragments of Northern Black Polished Ware.

Excavation on the north-western fringe of the mound brought to light monasteries of the earliest two phases. A large portico of baked bricks on edge and a long drain which carried the refuse of the portico were exposed (pl. XXXVIII A). The entrance to the large brick-paved hall, exposed in 1971, was fully excavated which revealed that the approach was through a flight of steps.

While exposing the plan of the *stupa,* where earlier caskets had been found, the *pradak-shina-patha* of the earliest phase was observed on the eastern side. The *pradakshina-patha* is made up of rammed brick-bats edged by complete brick-lining. Three phases of constructions in the *stupa* have been identified.

Towards the east of the *stupa* a massive platform, over which a shrine-like structure (pl. XXXVIII B) with moulded bricks was standing, had exposed. To the south of the platform was found a room enclosed by a wall which was included perhaps for the priest.

62. EXCAVATION AT VIRABHADRA TEMPLE-SITE, RISHIKESH, DISTRICT DEHRA DUN.— The North-western Circle of the Survey under Shri N. C. Ghosh, assisted by Sarvashri R. P. Sharma, B. P. Saxena, A. S. Sariyal, M. M. Srivastava and Ashok Kumar conducted excavation at the site where the structures and antiquities of the early centuries of the Christian era had been noticed earlier (1963-64, p. 45). The excavation was conducted with a view to ascertaining the culture sequence of the site as also to reveal the nature of the structures. Two trenches, VBA-I and VBA-II, measuring 5x5 m and 20 x 10 m respectively, were taken up at north-western part and the mid-eastern edge of the mound. The occupational deposit (3.90 m in VBA-I and 3.70 m in VBA-II) lies over the sandy water borne virgin soil resting on a pebble bed. The entire period of occupation (*circa* second century A.D. to *circa* eighth century A.D.) is divided into Early, Middle and Late phases on the basis of pottery, coins, other antiquities and brick-sizes. The occupation at the site, however, was continuous. Five structural phases and two floor levels in VBA-I and seven structural and four floor levels in VBA-II were encountered.

The Early phase (*circa* first century to third century A.D.) was represented by sprinklers of red polished ware, bowls of dull red ware with a vertically sharpened rim and sides tapering to a flat thickened base, lid of dull red ware with ledged shoulders, black-on-red ware sherds having motifs like hatched triangles, simple bands, etc. The pottery from these levels shows marked similarity with that obtained from the early levels

of Period IV at Hastinapur and Saka-Kushan period at Purana Qila, Delhi. To this evidence may be added a copper coin from the earliest strata, having on the obverse a king (diademed) standing with right hand over an altar, left hand out of flan, trident above altar, and on the reverse, two-armed Siva standing, holding noose (?) in right hand and trident (?) in left hand, behind him bull standing left, and Brahmi letter *ma* in the field. This example belongs to the Kushan copper coinage of *circa* first-second century A.D.

The Middle phase (*circa* fourth-fifth century A.D.) is distinguished by a mould-made bowl, kaolin sherds, sprinklers of inferior variety, cooking vessels with indentations and lug ears on their rims, sherds, bearing motifs in relief in imitation of jack fruit and ornamented bricks. Identical pottery and bricks were also recovered from excavations at Ahichch-hatra and Kashipur from the Gupta and post-Gupta levels.

In the Last phase (*circa* seventh-eighth century A.D.) most of the pottery types were a continuation of preceding phase. A marked decline in potting technique and stagnation in pottery shapes can be noticed. A silver coin, bearing a crude human figure (?) on the obverse and dots and lines on the reverse was recovered from the penultimate structural level. The coin is similar to Gadahiya issues and provides a date for the end of the occupation at the site. No precise reason, however, can be assigned for the desertion of the site. The occupation in the Early, Middle and Late phases flourished practically under political hegemony respectively of the Kushans, the Guptas and the Katuris (a local dynasty).

Structural remains from the Early phase of VBA-I were represented by a portion of a mud-brick structure built in two phases. The phase I of the structure was exposed to a length of 1 m with thirteen courses of mud-bricks (size: 36x24x7 cm) laid irregularly in mud mortar. The next phase of this structure was raised right on the top of the earlier phase. It was found damaged considerably by a later pit. The walls of this phase form an outer corner of a room, the north-south wall measuring 1-16 m, and the east-west 1.52 m. There was no change in brick-size or in mortar from the earlier phase. Associated with this structure was a rammed floor of earth and mud-lined circular hearth (dia. 44 cm). A number of unique handmade vases with pinched bottom and burnt patches were noteworthy finds from this phase. A bone tool, shaped out from a shaft piece, having secondary retouch and tempered tips and sides was also recovered from this level along with animal bones.

Structures from the Middle phase were jerry built. A wall of boulders and pebbles was exposed to a length of 3 m. Mud-bricks were also seen to have been used in this wall.

Structure belonging to the upper level was equally improvised and was represented by a portion of a room. Boulders and pebbles were used as building material. A wall built of baked brick robbed from nearby structure and pebbles was exposed below the north-south wall of the room.

Unlike in the cutting VBA-I, structural activities in VBA-II started with baked bricks. The first of the four structural phases of the early phase (pl. XL) was represented by a wall measuring 0.90 m in length and 0.48 m in width, having two courses and laid in slaked lime-mortar. Lumps of lime were also found alongside the wall. To the next phase belong two walls and a brick-on-edge lined hearth with its opening towards north. The third phase was marked by a corner of a room. The east-west wall of this room runs to a length of 1.10 m, and the north-south to 1.36 m, the width of both the walls being 48 cm. To this phase also belongs a portion of brick floor of 1.05 m in area. The size of brick is 35x22x6 cm which roughly corresponds to the normal size of bricks from Period IV of Hastinapur. Brick-bats, however, are mostly used in construction.

Foundation of a temple with a *linga,* in Structure 1, (pl. XXXIX A) and a house adjacent to it was laid bare in the mid-phase. The structure was partially exposed. The southern edge of the structure running east-west was traced to a length of 5.70 m. The maximum available courses were twenty-two, including four of the foundation. Two sizes of bricks, viz., 33x22x7 cm and 36x24x6 cm were found to have been used. The former, however, were used in the foundation. The plinth is embellished with two off-sets. The facade is plain but exhibits neat and careful treatment in laying bricks. A large number of ornamented bricks were recovered from the debris.

In the late phase the Structure 1 remained under use. To this was added another structure referred to hereafter as Structure 2. The remains of the structure were exposed about 20 m south of Structure 1. Structure 2 (pl. XXXIX B) was oriented east-west and follows the same alignment as that of Structure 1. It is rectangular on plan with an approach from the east. It had a paved floor and was relaid at least for a second time in its life span. A l.65-mwide platform could be traced only on two sides of the floor. Apart of the platform probably supported the superstructure. Bricks of 28 x 22 x 7 cm size used here follow the standard size of bricks in north India during the Gupta and late Gupta periods.

A house adjacent to Structure 1 with six rooms and a corridor was laid bare. The house had two independent sets. The eastern set comprised a long room (3.60 x2.26 m) inter-connected with an adjacent room by a 0.80 m wide door. The door-frame was fixed in an inset angle of the wall. In the western set there were at least four rooms. The rooms were on average 2.20 m square and were interlinked by doors having varying widths of 60 cm and 70 cm. All the rooms were paved with bricks except the corridor. Access to this set from the river side was through a corridor (3.66 m long and 1.32 m wide). There was no indication of cooking inside the rooms. It is interesting to note that iron spearheads, arrow-heads, plough-share and a sickle were recovered from inside and around the house.

Evidence regarding dietary habits of the people, as revealed by bones recovered from the excavation, deserves special mention. Nearly eighty per cent of the animal bones come from VBA-I while the remaining from VBA-II. It was seen that while only cattle bones have been recovered from the latter, the former yielded bones of both cattle and goat. The collection consists of fragments of long bone, ribs and vertebrals and some molars. It was observed that animal bones were confined to the early phase, the later phases being free from such remains. This change could be linked with the establishment of Structures 1 and 2 which may thus represent remains of temples. Probably the present emphasis on vegetarianism in Rishikesh-Hardwar could be traced back to *circa* sixth century A.D.

As a result of the operations in two selected areas of the mound, useful information was gathered on the settlement pattern of this ancient township. On the bank of the river (site VBA-II) structures were built of baked bricks right from the earliest phase. In the next two phases massive religious structures and vast complex of residential establishments attached to the above structures came up in the area. In the south-eastern part of the mound (VBA-I), however, houses were found to have been built of mud-bricks, boulders and pebbles. It would be reasonable to argue, therefore, that the former area was preferred by the elite and opulent, whereas laymen of the township dwelt further away. It is significant_to. note that settlement pattern has remained unaltered through the centuries.

63. EXPLORATION IN DISTRICT DEORIA.—A limited exploration was undertaken by Shri K. M. Srivastava of the Excavation Branch, Nagpur, of the Survey with a view to

locating the ancient site of Pawa, the capital of the Mallas, also the place where Lord Mahavira had died. The exploration was followed by a restricted dig at Asmanpur. The excavation yielded a few very interesting terracotta sealings, two of them bearing the legend of *Mahandesh* in Brahmi script of the first-second century A.D.

64. EXCAVATION AT JAJMAU, DISTRICT KANPUR.—With a view to determining the culture-sequence the Department of Archaeology, Government of Uttar Pradesh, working in collaboration with the Survey conducted trial excavation at Jajmau. It may be recalled that while digging for laying the National Highway, fine pieces of Painted Grey and Northern Black Polished Wares along with a dozen heavily patinated copper coins were collected from this site.

During the year under review a cutting measuring 10x10 m was sunk to a depth of 4 m. The digging revealed two rows of houses facing a street (pl. XLI). Their walls were found to be built of re-used bricks and brick-bats. At some places *lakhauri* bricks also seem to have been used. Two phases of the street were exposed; during the upper phase, it was 3.45 m wide, while in the lower it was only 1.80 m. The associated ceramic industry includes wheel-turned red ware of medium to coarse fabric and glazed ware. Common shapes include lid with conical knob, knife-edged and straight-sided bowl, spouted vase and *karahi,* besides storage jar, carinated *handi* and basin. The convex lids contain bird-like knob with perforations for getting the steam out of the pot. In glazed ware, two varieties, one with sandy texture with mono-or bi-chrome glaze without design and the other with glazed surface and bearing paintings, were encountered. The shapes include ring-based vases, bowls and dishes. Other important finds include a broken stone sculpture with a lady, iron arrow-heads, nails, rings, hooks and potter's stamps.

65. EXCAVATION AT MATHURA, DISTRICT MATHURA.—Under the general supervision of Shri B. K. Thapar, Sarvashri M. C. Joshi and J. P. Srivastava of the Survey, assisted by Sarvashri Avtar Singh, J. N. Gandhi, R. G. Agarwal and Pooran Singh of the Excavations Branch (II), Sarvashri Jassu Ram, R. K. Sehgal, Manohar Lai and BhagatRam of the Headquarters Office and Sarvashri Sushil Kumar Jain and O. P. Satsangi of the Northern Circle of the Survey, undertook excavation at Mathura in the north-western part of the city across Dhulkot (MTR-1 and MTR-3) and on the northern end (MTR-2) of Katra Kesavadeva mound in the vicinity of the Mahavidya temple. Besides imparting field training to the students of the School of Archaeology, this season's work had two main objectives to realize: (i) to examine the actual character of Dhulkot (pl. XLII A); and (ii) to assess the nature of settlement of Saka-Kushan period.

Earlier excavations at the Katra mound during 1956-57 by the Survey had already brought to light habitational deposit ranging from *circa* sixth century B.C. to *circa* sixth century A.D. The present cuttings across the Dhulkot (pl. XLII B) confirmed that it was originally built as a mud-fortification around the ancient city of Mathura. The excavation further revealed that it had been raised on the uneven natural soil resulting from successive floods. The available evidence suggested that builders of the ancient mud-defence or fortification-wall utilized the chain of natural mounds for its construction. The undulating surfaces were adjusted by the primary filling of compact and fine brownish clay, topped by secondary make-up of *kankar*-mixed hard earth and clay. In one instance, however, a buttress-like support was provided to the inner face of the wall for additional strength. The significance of this irregular buttress lies in the fact that it seals an earlier pit perhaps originally cut for ring-well. The pottery recovered from the various fillings of the mud-fortification is of a mixed order and consists mainly of fine grey and associated red

wares, common shapes being those of the Northern Black Polished Ware assemblage and dull and bright red ware sometimes bearing paintings ascribable to the early centuries of the Christian era. An interesting find was a sherd bearing fine impressions of cloth. The fortification, thus, could be tentatively dated to the Saka-Kushan period although it is necessary to confirm this assertion by further digging. The basal width of the defence wall was found to be about 30 m in one of the cuttings, the maximum extant height above the present ground-level being about 11 m .

The extant traces indicate that the Dhulkot or the mud-fortification with Yamuna on the east had an irregular crescentic shape with more pronounced southern horn or end which incidentally is in conformity with early Puranic references. With northern end near Gokarnesvara on the Yamuna bank, it even now encloses a large portion of the Ma-thura city including Katra Kesavadeva and Holi Darwaza areas. The enclosed area within the fortification is over 3 sq km.

The habitation area (MTR-2) was found to be much disturbed due to water erosion, pit-activity and later dumps including those of modern times. The excavation, however, unfolded a cultural sequence divisible into three periods.

Period I was represented by fine grey and red ware sherds, found intermixed with water-affected deposit mainly sand and clay.

The principal ceramic industry of Period II was the Northern Black Polished and associated wares. Some mud floors were also found associated with these levels besides a few ring-wells. Amongst the important antiquities of the Period mention may be made of some terracotta figurines (pl. XLIII A), a square copper coin and a square seal of shell, reading *Idrayasa* in Brahmi letters.

Period III, roughly corresponding to the Saka-Kushan Period, was represented by brick structure having fine and strong floors of rammed brick beside large mud-platform, a few ovens (pl. XLIII B), traces of drains cut into ground and a small brick-lined *kunda.* The principal pottery of the period included bright and dull red wares of fine, medium and coarse fabric, significant shapes being vases, dishes, bowls and numerous varieties of sprinklers. The decorations on pottery comprise stamped, incised and painted designs. Some of the pots show some similarity with the pottery of the Rang Mahal Culture. The notable finds consist of: human (pl. XLIV A) and animal terracotta figurines, including bird-shaped rattles (pl. XLV A); votive tank (?) (pl. XLIV B); beads of various kinds; kaolin sherds; terracotta stamps; a seal reading *vijayasivagramarddhah* (pl. XLVB); and two later Kushan coins (pl. XLV C).

A trial trench sunk at Chamunda mound yielded a deposit containing the Northern Black Polished and associated wares which was superimposed by a brick structure belonging to the early centuries of the Christian era. Scanty traces of a later structure of brick were also noticed.

66. EXPLORATION IN DISTRICT RAI BAREILLY.—Shri Bimal Chandra Shukla, a student of the Department of Ancient History, Culture and Archaeology, University of Allahabad, during the course of exploration noticed an early historical site at Sarani, yielding: plain grey, black-slipped, black-and-red and red wares; a small slab carved with animal figure in low relief; and a silver punch-marked coin.

WEST BENGAL

67. EXCAVATION AT BHARATPUR, DISTRICT BURDWAN.—Shri S. N. Samanta of the Burdwan University and Shri S. K. Mukherjee of the Eastern Circle of the Survey, assisted

by Sarvashri S. K. Ghosh and K. P. Gupta of the Survey, resumed excavation of the site. The excavation revealed four-fold culture sequence, as detailed below.

Period I, neolithic-chalcolithic in nature, is characterized by plain and painted pottery, the shapes and painted designs of which are similar to those found at Birbhanpur, Pandu Rajar Dhibi and Mahisadal, microliths, neolithic celts, steatite beads, copper objects, etc. That the houses were built of perishable material like reed is evident from the occurrence of burnt clay with reed-marks. Though no complete house-plan could be exposed due to the limited nature of the excavation, floors with hearths were encountered. This period is datable to first millennium B.C., on the basis of pottery and antiquities.

Period II, representing Iron Age, overlaps with the preceding culture. The ceramic industry of the preceding culture continues in this period, but is represented by degenerated, coarse and gritty pottery. The upper levels of this period yielded a few Northern Black Polished Ware sherds along with black polished ware.

Period III is marked by a baked brick structure, of which only a few courses are extant, probably belonging to the Gupta period. A cultural break was noticed between the preceding period and this one.

Period IV is represented by a dilapidated *stupa* of square plan of *pancharatha* type, of eighth-ninth century A.D. The foundation of the *stupa,* it was observed, is built of reused bricks, whereas the square platform with the bricks of 30 x 28 x 7 cm in size.

68. EXCAVATION AT TAMLUK, DISTRICT MIDNAPORE.—The Eastern Circle of the Survey undertook a small-scale excavation at Tamluk situated on the right bank of the river Rupnarayan, a tributary of the Hooghly, under the guidance of Shri S. K. Mukherjee, assisted by Sarvashri V. Sen and S. K. Ganguly. The objectives of the excavation were: (i) to ascertain the antecedents of the site; and (ii) to trace the remains of the ancient port. Two trenches, each measuring 10x10 m, were laid out in the open space behind the Munshif's bungalow.

Besides confirming the earlier known culture-squence (1954-55, p. 19) the excavation brought to light new evidence about the cultural phase of the pre-Northern Black Polished Ware horizon. Although no regular habitational deposit of this phase (Period I) could be encountered in the limited area under excavation, the occurrence of the black-and-red ware did indicate the possible lingering remnant of a chalcolithic culture in the area. The noteworthy finds of the period included tiny polished stone celts and a variety of bone tools.

Period II was represented by the use of the Northern Black Polished Ware. The remains of a burnt floor with a number of post-holes were encountered in this period. The floor was made of rammed brick grits.

Period III was marked by the occurrence of incurved bowls of red ware and a number of terracotta objects of the Sunga period. The structural remains comprised a series of hearths on a floor rammed with brick grits.

Period IV was distinguished by the presence of Rouletted and Red Polished Wares, indicating a brisk maritime trade-contact with the Roman world. The small area under operation, however, failed to unearth the remains of the ancient port.

The overlying deposits were found to have been badly disturbed during the Medieval period. A noteworthy find was the occurrence of a terracotta ring-well, 80 cm in diameter, the top level of which was found to have been disturbed. As such its exact date could not be established.

H. EPIGRAPHY

SANSKRITIC AND DRAVIDIC INSCRIPTIONS[1]

ANDHRA PRADESH

1. INSCRIPTIONS FROM DISTRICT NALGONDA.—A number of newly-discovered inscriptions refer to the political conditions prevailing in the twelfth-thirteenth centuries A.D. Among these mention may be made of the one from Vellala : dated in Saka 1020 (A.D. 1098) and written in Sanskrit language it refers to Mahamandalesvara Mallikarjuna of Kanduri Choda family and traces the geneology of the family to Karikala and Eruva Bhima. The extension of certain territorial divisions namely Cheraku and Eruva to Telingana for the first time is significant.

Belonging to the same period are two epigraphs from Anamala in Miryalaguda Taluk. They belong to the Kanduri Choda family which paid allegiance to the Western Chalukyas of Kalyani. One of them, dated Saka 1050 (A.D. 1128), was issued by Sridevi Tondaya and is silent about the overlord, suggesting an independant status. The other, dated to A.D. 1127, belongs to one Gokarna.

An inscription from Chandupatla, belonging to the reign of Kakati Rudrama, dated to Saka 1211 (A.D. 1289) furnishes an important date of the last regnal year of Kakatiya Rudramadevi. It refers to the death of the queen and her general Mallikarjuna probably on the battle-field.

2. INSCRIPTIONS, CHERLAPALLI, DISTRICT NALGONDA.—Of the three Telugu inscriptions in Telugu characters from the Anesvarammagutta, the first, dated Saka 1129 (A.D. 1207), records a grant of lands to a *brahmana* by Ereyana Peggada and also for the merit of Kanduri Odayanachoda-maharaja, the local ruling chief. The second inscrip tion, in characters of the twelfth century engraved on the pedestal of an image, states that this is an image of Mahamandalesvara Kanduri Odayanachoda-maharaja. The third, engraved around the foot-prints in characters of the twelfth century, reads as *Jina Brahmayogi-guru-pada Charukirtti*.

3. FRAGMENTARY INSCRIPTION, GURAZALA, DISTRICT NALGONDA.—Written in the archaic Telugu characters of *circa* ninth-tenth century A.D., it refers to the early family name of the Recherla chief, probably the Velamas, who ruled over part of Telngana during the fourteenth century A.D. and mentions a tract called 'Chirpulinadu' in association with the early members of this family.

4. INSCRIPTION, INDRAPALANAGARA, DISTRICT NALGONDA.—This epigraph in Kannada language and Kannada characters of tenth century, engraved on a stray pillar attached to another, erected as a door-post at the gate of a deserted temple at the foot of

[1] Information from : 1, 3, 8 and 11, the Director of Archaeology and Museums, Andhra Pradesh; 19 to 23, the Director of Archaeology, Orissa; and the rest from the Chief Epigraphist of the Survey.

the hill, records the grant of lands to Jayadhira-jinalaya by Mahasamantadhipati Sankara-gandarasa endowed with the epithets *Jayadhira, abimana-dhavala, Rattara-meru,* etc.

5. INSCRIPTION, RAJUPETA, DISTRICT NALGONDA.—This Telugu inscription, in Telugu characters of the twelfth century, records the gift of lands for food offerings to the deity Proledeva by Mailama-maha-devulu, the wife *(phala-bhogabhagini))* of Kanduri Gokarna-choda-maharaja. It also states that Kattiraddi who built this temple at Eypuru granted three flower-gardens for the worship of the same deity.

_ 6. CHALUKYA INSCRIPTION, RAMALINGAGUDEM, DISTRICT NALGONDA.—This Telugu inscription in Telugu characters, dated in the Chalukya Vikrama year 29, Tarapa (A.D. 1104), records a gift of an *agrahara* newly-created by adding certain lands from Kanduru, Tipparti, etc., to Kavaliya Brahmadevayya by Mahamandalesvara Kanduri Bhimanachodda-maharaja, the feudatory of Chalukya Tribhuvanamalla.

7. KAKATIYA INSCRIPTIONS, DISTRICT NALGONDA.—Of the four inscriptions in Sanskrit and Telugu language and in Telugu characters, from stray pillar stones, belonging to the reign of Ganapati, the first from Annareddigudem, dated Saka 1172 (A.D. 1250), records a grant of land in Panugallu by *Senaboyani* Ramadeva-preggada of Pimna-Yedavalli who received it from Gange-sahini for the *amga-ramga-bhoga* of the deities in the five temples of Visvanatha, Sahasralinga, Ganapesvara, Madesvara and Vasudeva and Lakshmi cons tructed by him at Rudravarapuvada in Orumgallu. The second from Kottapalli, dated Saka 1173 (A.D. 1251), records the grant of village Kottapalli by Gangaya to Munindra-dhama-yati, a disciple of Panipatra-prabhu, for the enjoyment of the three deities Sarngi, Nrisimha and Daityasuda, and also for the enjoyment of ascetics residing at Mokhala, for the benefit of his parents. It further describes the *tirthas* like Mokhala, Sankha, Suka and Sukla in Dandakaranya. The third from Chityal, dated Saka 1175 (A.D. 1253), records that *Brahmarakshasa* Gamgaya, described as the right hand of Ganapati, granted the village Chittalu to Jayasarma, a resident of Mahadvaraka-*kshetra* for the worship and offerings to lord Krishna of Dwaraka near the confluence where river Gomati joins the sea, for the prosperity of his kingdom. The fourth inscription from Anantaram, dated Saka 1181 (A.D. 1259) records the gift of the village Jillepalli by Jannigadeva to Munidhama-yati for the *anga-ranga-bhoga* of the deity, Gamganarayana. Jannigadeva is described as the son-in-law of Ga.nga-*senapati,* the son of Dasavanta-*pandita* and the grandson of *Danu-pandita* who are referred to also in the second and third inscriptions as the father and grandfather of Gangaya or Gange-sahini.

8. BRAHMI INSCRIPTION, CHANDAVARAM, DISTRICT ONGOLE.—Written in the Brahmi characters of the third century A.D., the inscription is in Prakrit language. It refers to a gift made by a certain *samgha,* son of Chamda Magha to the Lord (Buddha?).

9. EASTERN GANGA INSCRIPTION, MUKHALINGAM, DISTRICT SRIKAKULAM.—The inscription which is engraved on the *adhishthana* of the *sanctum sanctorum* of the Mukhalingesvara temple, is in Nagari characters of about the ninth century and in Sanskrit language. The record, partly worn out, mentions Danarnava and Gunarnava and the latter's queen (*bhattarika*) whose name is lost.

10. NAGARI INSCRIPTIONS, MUKHALINGAM, DISTRICT SRIKAKULAM.—A few inscriptions engraved on the wall of the *sanctum sanctorum* of the Mukhalingesvara temple are

in ornamental Nagari characters of about the ninth-tenth centuries and in corrupt Sanskrit. They mention names of individuals such as Manikkam and *Rajaputra* Gaggabala, Gunaraja, Mahavaraha and Prithvi-Gopala. Varendri-*vishaya* is also referred to.

11. TELUGU INSCRIPTION, KONDAPARTI, DISTRICT WARANGAL.—Engraved on a huge boulder lying in the midst of a tank in characters of *circa* ninth-tenth century A.D., it contains certain early Telugu terms such as *Tambulasravambu chesina bhumi,* etc., and refers to Armakonda which is identical with the present Hanumakonda.

BIHAR

12. TERRACOTTA SEALING, ANTICHAK, DISTRICT BHAGALPUR.—This sealing is reported to have been discovered during the recent excavation of the site. It shows, in the countersunk surface, a line of writing in early Nagari characters of about the tenth century and in Sanskrit language. It reads Sri-Purushottamapalah.

GUJARAT

13. BRONZE IMAGE-INSCRIPTION, AHMADABAD, DISTRICT AHMADABAD.—An undated Sanskrit inscription, in Southern (cursive) characters of about the eigth century A.D., engraved on the pedestal of a bronze image now kept in the L. D. Institute of Indology, records the construction of a *Jina-bhavana* of the Tirthesvaras and a bathing tank by the merchant (*sreshthin*) Durggaka of the Vidyadhara-gachchha probably accompanied by his wife Shashthavva. The writing on the left and right sides of the pedestal records the obeisance of Durgga-mahattara and Shashthavva.

14. MEMORIAL-INSCRIPTION, BHACHAU, DISTRICT BHUJ.—One inscription, engraved in Nagari characters and local dialect and dated in Vikrama 1754 (A.D. 1657-58), mentions Bachau and seems to refer to the setting up of the memorial stone prepared by the sculptor (*salata*) Sarangadhara. Another inscription, also in Nagari characters and local dialect, and dated in Vikrama 1756 (A.D. 1699-1700), mentions *Kuara* Megharajaji and Ramasanghaji and seems to refer to the setting up of the memorial stone.

KARNATAKA

15. INSCRIPTION, DEVARA-SIGIHALLI, DISTRICT BELGAUM.—The inscription in Kannada language and characters and dated in Chalukya Vikrama year 17 (A.D. 1094), describes the fifty-two *brahmanas* of the *agrahara* Magoda situated in the Palasige-Twelve thousand division and records the remittance of the tax *talasarige* and one *honnu* (probably on annual basis) to the Mahesanilaya by *Mandalesa* Joyiya-bhupa administering the area.

16. CHALUKYA INSCRIPTION, KADAROLLI, DISTRICT BELGAUM.—The inscription in Kannada language and characters belongs to the reign of Chalukya Tribhuvanamalla (Vikramaditya VI) and is dated in his regnal year 2(3) (A.D. 1098). It mentions the king's feudatory *Mahamandalesvara* Guvaladeva as governing the Palasige-Twelve thousand division from his capital Govage and refers to his subordinate *Mahamandalesvara* Arike-sarideva of the Ganga family as administering the *manneya* of Kadaravalli-Thirty-six. It

registers a grant of some *gadyanas* for the purpose of offerings and the burning of the perpetual lamp for the deity. Ramesvara-jiya seems to be the recipient of the grant.

MADHYA PRADESH

17. INSCRIPTIONS, UN, DISTRICT WEST NIMAR.—Of the inscriptions copied at the place, two were found engraved on the pedestals of two stone Jaina Tirthankara images. Both are in Nagari script and in Sanskrit language. One of them, now kept in the Parsvanatha temple, is dated Vikrama 1218 (A.D. 1161) and records the perpetual obeisance of Sadhu Gosala and his brother Samma, who are said to be the sons of Sadhu Silana and his wife Harasini. It also mentions Silana's father Sadhu Dhanapati belonging to the Gurya(ja)-ranvaya of Pamdita sri-Isanandi of the Bala(tka*)ra-gana. The second inscription, kept in the central shrine of the Mahavira-*chaityalaya*, is dated Vikrama 1252 (A.D. 1195) and records the perpetual obeisance of Sadhu Valha, his wives Alha and Mamdodari and sons Sadhu Golha, Ratana and Bhalu. It also records the perpetual obeisance of *Acharya* sri-Prabhachandra. A third incomplete inscription found on the wall to the proper left of the entrance of the dilapidated Ballalesvara temple, is in Nagari characters of about the thirteenth century and in local dialect. Its purport is not clear, but it refers to sri-Va-(Ba)llala and to *Rajaputra* Vaijaladeva.

A fourth inscription is found engraved on the pedestal of a stone standing image of Siva kept in the open-air sculpture gallery belonging to the Archaeological Survey of India. It is in Nagari characters of about the 12th century and in Sanskrit language. It records that the image of Narako(d*)dharana-Lokesvara was caused to be made by Thiradeva for the sake of Lakhamadeva.

MAHARASHTRA

18. SANSKRIT INSCRIPTION OF BHULOKAMALLA, DHARMAPURI, DISTRICT BIR.—An indifferently engraved inscription in Nagari characters and Sanskrit language, refers itself to the reign of Bhulokamalla or Somesvara III of the Kalyana Chalukya family and is dated in the cyclic year Pramadi (A.D. 1133). It seems to record the establishment of a *[So)ma-yara-vipanih* (Monday-mart) (?) at Dharmapuri. A certain Kirtti-varma-nripati is mentioned towards the end. The inscription was written by Ekama.

ORISSA

19. ORIYA INSCRIPTION, SONEPUR, DISTRICT BALANGIR.—The inscription from the Kamesvari temple contains eight lines of Oriya language written in north Indian script.

20. BILINGUAL INSCRIPTION, DANPUR NEAR KODALA, DISTRICT GANJAM.—It is a bilingual inscription containing fifteen lines of writing in Sanskirt and Telugu belonging to the Ganga period.

21. HERO-STONE, KHARIAR, DISTRICT KALAHANDI.—The hero-stone inscription contains only one line.

22. ORIYA INSCRIPTIONS, YOGAMUNDA HILL, DISTRICT KORAPUT.-Of the two inscriptions, a two-lined inscription, engraved on the entrance wall of the temple of

Nilakanthesvara is in Kutila characters of *circa* seventh-eighth century A.D. and refers to one Dharmakirti, probably a Buddhist monk of Kalinga. The other, on the outer entrance of Mallikesvara temple, is engraved in proto-Oriya characters of the time of Gajapati king Kapilendradeva.

23. ORIYA INSCRIPTION, BHANGARH, DISTRICT PURI.—The inscription in twelve lines written in proto-Oriya script and Oriya language, belongs to the time of Purushottamadeva of the Suryavamsi dynasty.

RAJASTHAN

24. INSCRIPTION, RAJAPUTANA MUSEUM, AJMER, DISTRICT AJMER.—This inscription is found engraved on the pedestal of a seated marble figure of a Jaina Tirthankara dis covered at Ladnu, District Nagaur. It is in Nagari characters and Sanksrit language. Dated Vikrama 1303 (A.D. 1246), it records that the image was caused to be made by Bhavya Pahada and his wife Sajani for the religious merit of Sri Samtu belonging to Narasimhapuri and his wife Vilhu, the parents of Bhavya Pahada.

25. CHHATRI INSCRIPTIONS, KAGA, DISTRICT JODHPUR.—The five *chhatri* inscriptions from this place noticed here are in Nagari characters and in a mixture of corrupt Sanskrit and local dialect. One of them, dated in Vikrama 1675 (A.D. 1618) and Vikrama 1689 (A.D. 1632), seems to record the death of Rammasarana, the son of *Champavata* Vithaladasa and the making of the *chhatri* on the first date and its consecration on the second. Another, dated in Vikrama 1701, Saka 1566 (A.D. 1644) and Vikrama 1697, Saka 1562 (A.D. 1640) seems to record the death of *Raja* Sahaja, the son of *Rathoda* Srashmaji on the second date and the performance of *sati* by his wife *Rajkuvara*-Bhatiyani-Jesalamari on the first date. The third inscription, dated in Vikrama 1859, Saka 1725, Bhadrapada (A.D. 1802) and Vikrama 1859 Ashadha (A.D. 1803-04) seems to record the death of Jodharajati on the first date and the setting up of the *chhatri* on the second. The fourth inscription dated in Vikrama 1886, Saka 1750 (A.D. 1829) and Vikrama 1917, Saka 1772 (A.D. 1860), records the death of Indusimhaji, the son of *Thakura* Uderama on the first date and the setting up of the *devali* on the second.

TAMIL NADU

26. PANDYA INSCRIPTION, ATTANI, DISTRICT COIMBATORE.—Engraved in Tamil characters of about the thirteenth century, this inscription dated in the 30th regnal year of Jatavarman Sundarapandya records the gift of the village Attani, made tax-free, to the god Sundarattoludaiyar in Kuvalur by the *nattayar* of Vadakarai-nadu.

27. HOYSALA INSCRIPTION, MALAPPALAYAM, DISTRICT COIMBATORE.—Dated in the cyclical year Pramadi (A.D. 1339-40) in the reign of Hoysala Vira-Ballala III, this Tamil inscription from the Subrahmanya temple, in prose and verse, records the gift of door-posts to the temple of Skanda by a resident of Tenseri.

28. PANDYA INSCRIPTION, SARKAR PERIYAPALAYAM, DISTRICT COIMBATORE.—This inscription, assignable to the 13th century on grounds of palaeography and dated in the

230th day of the 8th regnal year of Virapandya, records a royal order exempting from taxes the lands in Mukandanur, belonging to the temple of Tirukkurakkuttali, for food offerings to the god of the temple on the days of *svati,* the natal star of the king.

29. INSCRIPTION, RAMAKRISHNAMPADI, DISTRICT DHARMAPURI.—This Tamil inscription in Vatteluttu characters of the 8th century is dated in the 10th regnal year of Kattinai-parumar and records the death of a hero in the course of a cattle raid when Perumbanadi-araiyar was ruling over (Kovur-)nadu.

30. PANDYA INSCRIPTIONS, KARUNGALAKKUDI, DISTRICT MADURAI.—Two Tamil inscriptions respectively dated in the 11th and 12th regnal years of Jatavarman Sundara-pandya (A.D. 1251 to *circa* A.D. 1273) record gift of villages along with the income from taxes by the assembly of the village Sulumarsar-gandan in favour of the temple of the god Alagapperuman Vinnagar Emberuman. The lands were entrusted for cultivation to Irasandan Manikkachchokkan, a *kaikkola* of Madurai.

31. NAYAKA INSCRIPTION, KARUNGALAKKUDI, DISTRICT MADURAI.—Dated in Saka 1526, Krodhi (A.D. 1604), this Tamil inscription refers to the capture of thieves by Sriranga Ravuttar Vattilai Ravuttar, an agent of Lingaiyanayakkar who is known to have ruled from Madurai.

32. INSCRIPTION, KADALADI, DISTRICT NORTH ARCOT.—The epigraph in Tamil language and characters is dated in Saka 1455 (A.D. 1533). It records the conferment of the rights of maintaining daily a day-lamp (*pagal-vilakku*) and serial lamp (*dipamalai-vilakku*) on Tirukkattigai, hereditarily on three persons (*kudiyal*) in the Lakshminarayana-perumal temple in Kadaladi *alias* Kumara Venkatadrisamudram by the *aseshamahajanam.*

33. INSCRIPTIONS, MADAVALAM, DISTRICT NORTH ARCOT.—Dated Saka 1319 (A.D. 1397) in the reign of Immadi Bukkanna Udaiyar, son of Harihararaya, this Tamil inscription contains a declaration that the *tiru madaivilagam* of the temple of god Angakariyisvara-mudaiyar in Perumal-agaram *alias* Kilkurumali in Eyil-nadu was a quarter for refugees (*Anjinanpugalidam*) made by *nattar* on the orders of the king. Dated in Saka 1335 (A.D. 1413), another Tamil inscription belonging to Vira Vijaya-Bhupatiraya, son of Devaraya records the grant of exemption from all taxes (*sarva-manya*) on two villages, Pettai and Agaranallur for the worship and services of god, Angakarisvaram-udaiyar in Madappalli in Eyil-nadu.

34. CHOLA INSCRIPTIONS, NATTAM, DISTRICT NORTH ARCOT.—The Tamil inscription dated in the 18th year of Rajaraja II in characters of the 12th century, records the gift of a twilight lamp to god Tiruppalanamudaiyar by Puduppakkilan Angadiyalvan Kaman. Another inscription dated in the 30th year (A.D. 1207-08) of Kulottunga III states that Aludaiyanachchiyar, the daughter of Kaiyalvi, a *devaradiyal* of the temple of Tiru-virattanam-udaiyar at Tirukkovalur set up an image of the goddess in the sleeping chamber (*palliyarai*-nachchiyar) in the temple of Tiruppalanamudaiyar in Kakkaiyinkarai in Kalin-jiraipparru, a sub-division of Eyil-nadu in Iagadur-nadu in Nigarilli-solamandalam and gave land to provide for midnight service and food offerings.

35. CHOLA INSCRIPTION, TAMARAIPPAKKAM, DISTRICT NORTH ARCOT.—This Tamil inscription in characters of the 10th century and dated in the 13th year of the reign of

Parakesarivarman, records the grant of land to the deity at Tamaraippakkam by Attimallan *alias* Kannaradevap-pridiyangaraiyan, the son of Pridiyangaraiyan of Pangala-nadu.

36. TAMIL INSCRIPTION, SENGALIPURAM, DISTRICT THANJAVUR.—Engraved in characters of about the 12th century, this inscription from the Dundubhisvara temple records that the temple was constructed in stone by Tillaivanam-udaiyan *alias* Ariyan, salika of Mudikondasolap-perunderuvu in Gangaikondasolapuram.

37. MARATHA INSCRIPTION, PATTUGUDI, DISTRICT THANJAVUR.—Dated in Saka 1636 (wrong for Saka 1633) and Virodhi (A.D. 1711), this Tamil inscription of the time of the Maratha king Shahji of Tanjavur records the gift of lands by the king's agent (name not clear) for conducting daily worship to the god Kumara (i.e. Subrahmanya) of Pattigudi.

38. BRAHMI INSCRIPTION, AYYARMALAI, DISTRICT TIRUCHCHIRAPALLI.—Engraved in the Brahmi characters of about the first century B.C., this Tamil inscription records the creation of what is called *atataanam* (Sanskrit *adhishthanam)* an abode or 'a place of vow' by Vesan hailing from Panaiturai.

39. CHOLA INSCRIPTIONS, TIRUVASI, DISTRICT TIRUCHCHIRAPALLI.—Of the many inscriptions copied in the Marruraivaradisvara temple, a fragmentary inscription of the time of the king Parantaka I (A.D. 907-47), registers gift for burning a lamp to the god. Dated in the 19th regnal year of Rajaraja I (A.D. 985-1016) another epigraph records a sale of land, made tax free by the *sabhai* of Tudaiyur in Malanadu *alias* Rajasraya-valanadu to the temple of Tiruvasramam-udaiya-Mahadeva for burning lamps to the god by receiving gold endowed by an official of the king name Adittan *alias* Sembiyan Brahmama-rayan. The third inscription dated in the 13th regnal year of Rajadhiraja I (A.D. 1018-52) records some provision made for daily expenditure in the temple. The fourth epigraph dated in the 20th regnal year of Rajaraja III (A.D. 1216-46) records gift of cows and vessels by Vasavannan for conducting Panchadravya or Panchagavya bathing of the god. The fifth inscription dated in the 21st regnal year of the same king records the grant of lands by the same person in lieu of the cows reported to have died.

40. PANDYA INSCRIPTIONS, TIRUVASI, DISTRICT TIRUCHCHIRAPALLI.—Of the three epigraphs from the same temple two inscriptions record the order of Maravarman Sundara-pandya I in his 9th regnal year (A.D. 1224-25) issued at the instance of his wife's brother Alagapperumal from his royal seat Malavarayan in his palace at Tiruvarangam, granting land, made tax free, in Ponnarulalanallur for conducting daily worship after his own name, viz., *Sundarapandyan-sandhi* to the deity Tiruvasramam-udaiya-nayanar at Tiruvasi. The other dated in the 5th regnal year (A.D. 1254) of Jatavarman Sundarapandya I records the exemption of taxes by the *nattavar* of the Tiruppidavur-nadu on some lands enjoyed by the temple.

41. CHOLA INSCRIPTION, SRIVAIKUNTAM, DISTRICT TIRUNELVELLI.—Dated in the 15th regnal year of the Chola king Rajaraja I, this inscription in Vatteluttu characters records a gift of land by purchase by Adigal Niradi *alias* Parakesari Muvendavelan hailing from Urrukkadu on the southern bank of the Kaveri river in the Chola country for burning lamps and for feeding daily at noon ten scholars well-versed in the *Vedas* and *Sastras* in the

temple of the god at Srivaikundam, a *devadana* in the village Varagunamangalam in Tiru-valudi-valanadu. The *masabhai* of the village exempted the lands from tax.

ARABIC AND PERSIAN INSCRIPTIONS[1]

ANDHRA PRADESH

1. INSCRIPTION OF THE QUTB SHAHIS, DISTRICT NALGONDA.—This new record of the time of Masnad-i-'Ali Ulugh A'zam Malik Qutbu'l-Mulk, found at Rajupeta (pl. XLVI A), records the construction of a tank at Yampur, in dedication to the memory of Twelve Imams, in A.H. 930 (A.D. 1523-24) by Baba Khan, a retainer of Malik Qiwamu'l-Mulk, out of his personal money. Of the produce grown with the help of the tank, one share was to be given to the Diwan, two for the uplift of the public and one for the builder which he assigned for the *Langar* (Free-kitchen) of the Twelve Imams. The yearly income derived from that much land obtained on free-hold lease by the builder in which 5 *kuro* seed could be sown was to be spent on the repairs of the bridge.

DELHI

2. INSCRIPTION OF THE MAMLUKS, FROM DELHI.—This damaged and fragmentary inscription, preserved in the National Museum, is assignable to the 13th century. According to its extant text, the completion of some building took place in the reign of some king (name and other particulars lost).

3. MISCELLANEOUS INSCRIPTION FROM DELHI.—An epitaph, recording the demise of Sipahsal(tar) 'Izzu'd-Din Bakhtyar in A.H. 616 (A.D. 1219), was found at Mehrauli (pl. XLVI B).

GOA

4. INSCRIPTION OF THE MUGHALS, DISTRICT PANAJI.—Now deposited in the Archaeological Museum at Velha Goa, it was originally found at Veluz. It purports to be some royal order issued in A.H. 1001 (A.D. 1592-93) in the name of the Mughal emperor Akbar. It refers to some important local officials such as Mubarizu'd-Din Farhad Khan, the *Sar-i-lashkar,* I'timadu'd-Daula A'zam Khan, the Samaubat and I'tibar Khan.

GUJARAT

5. INSCRIPTIONS OF THE TUGHLUQS, DISTRICTS KHEDA AND MAHESANA.—A fragmentary new inscription of Ghiyathu'd-Din Tughluq Shah, recording the construction of a mosque, was found at Patan, District Mahesana. A new inscription of Firuz Shah Tughluq

[1] Dr Z. A. Desai, Superintending Epigraphist for Arabic and Persian Inscriptions of the Survey, Nagpur, assisted by Shri M. F. Khan, Senior Epigraphical Assistant and Shri S. S. Husain, Epi-graphical Assistant, found, copied, examined and reported on three hundred and two inscriptions during the year. Of these, nos. 1 & 2 were received from the Chief Epigraphist, Archaeological Survey of India, Mysore. The important ones of these are noticed here.

was found at Cambay, District Kheda. It records the construction of a mosque in A.H. 767 (A.D. 1365-66) by Haji Muslih Shirazi and refers to the governorship of Mafkharu'l-Khawass Mufarrah Sultani, the Dwidar-i-Khass (Royal Inkstand-bearer).

6. INSCRIPTIONS OF THE SULTANS OF GUJARAT, DISTRICTS KHEDA AND MAHESANA.—An inscription of the time of Ahmad Shah I, recording the reconstruction of a mosque by Ahmad., son of Mahmud and great grandson of Amir Majdu'd-Din Asaf Khani, in A.H. 815 (A.D. 1412) was found at Cambay. An epigraph of Mahmud Shah I, found at Patan, records the construction of a mosque by 'Ali Shah son of Daulat Shah in A.H. 880 (A.D. 1475). An extremely interesting epitaph from Parantij, District Sabarkantha, states that Ra-i-A'zam Khan-i-Mua'zzam Sikandar Khan, son of Rai Ghiyath, son of 'Umar, son of Muhammad son of (the Sumara Chief) Duda was killed in A.H. 885 (A.D. 1480) at Thana Sinher (Sambhar?) at the age of thirty-two in the reign of Muhmud Shah I (pl. XLVI C,D and E).

7. MISCELLANEOUS INSCRIPTIONS, DISTRICTS KHEDA, MEHESANA AND SABARKANTHA.—An inscription from Patan records the construction of a mosque in A.H. 734 (A.D. 1334) by Diyau'd-Din Muhammad, son of Muhammad, who is designated as the great Sadr. A badly damaged epitaph, from Cambay, records the martyrdom of Fakhru'd-Din Abd Bakr, son of Ibrahim son of Adam al-Quraishi which occurred in A.H. 749 (A.D. 1348). Another damaged epitaph from the same place records the death of Ahmad, son of Yusuf, son of Hasan who was a Hafiz of the *Qur'an.* He is stated to have died in A.H. 758 (A.D. 1357). The epigraph has another date, viz., A.H. 772 (A.D. 1371) which is probably that of setting up of the slab. From the same place was found a fragmentary epitaph which records the demise, which took place in A.H. 786 (A.D. 1384-85) of a person whose name is lost but who was popularly known as Ibn Usaiba's al-Mashhadi (i.e. from Mashhad in Iran).

A record from Harsel, District Sabar Kantha, assigns the construction of a mosque in A.H. 807 (A.D. 1405) to the period of Khan-i-A'zam Khaqan-i-Mu'azzam Zafar Khan (later on Muzaffar Shah I of Gujarat). It was briefly but incorrectly noticed earlier. An epitaph of a lady, found at Cambay, provides names of some nobles: it records the death of Bibi Sa'ida Khatun, daughter of Malik Zahiru'd-Din Mansur Siraju' 1-Mulk and maternal grand-daughter of the deceased Malik-i-Tujjar and wife of Malik Farid, son of Nizam, son of Khusraw. The husband was the Khass-Nawis (Royal reporter). She had died in A.H. 819 (A.D. 1416). An epitaph from Patan recording the death of Sayyid Qutbi Ahmad, notes his popular name Kaliwat. In another epitaph from Patan, the deceased Shaikh Shamsu'Din son of 'Isa son of Isma'il who died in A.H. 860 (A.D. 1455), is stated to have been locally called Lakhat. An epigraph from Cambay assigns the construction of a mosque in A.H. 912 (A.D. 1506) to 'Izzu'd-Din, son of Mujibu'd-Din al-Qazwini. An epitaph from the same places records the demise of Shaikh 'Abdu'r-Rahim, son of Shaikh Khan Muhammad a's-Siddiqi al-Kazeruni who died in A.H. 1099 (A.D. 1688). One more epitaph from Cambay records the death of Shaikh 'Abdu'l-Wahhab, son of 'Abdu'l-Qadir, son of Muhammad Musa, who died in A.H. 1123 (A.D. 1711); he is described as a vastly learned man.

A good number of epitaphs were found in the family graveyards of the Nawwabs of Cambay. They supply interesting information about these rulers as well as their kinsmen, throwing new light on their dates, as also supplying names of a few poets of Persian of sufficient merit. Some of the deceased mentioned are: Mirza Zainu'l-'Abidin entitled Najam Khan Bahadur, son of Mirza Muhammad Amin of the Najam-i-Thani (family), who died in A.H. 1160 (A.D. 1747); Mirza Muhammad Zaman, son of Mirza

Muhammad Ja'far, son of Nawwab Mirza Muhammad Baqir, a grandson of the celebrated Iranian minister Nawwab Khalifa Sultan al-Husaini al-Ma'rashi, who died in A.H. 1182 (A.D. 1769); Nuru'd-Din Najmu'd-Daula Momin Khan the Second, who died in A.H. 1198 (A.D. 1784); Mira 'Abdu'1-Baqi, a grandson of Nawwab Mirza Muhmmad Baqir and great grandson of the same Khalifa Sultan, who died in A.H. 1199 (A.D. 1785); Khan-i-Khanan Najmud-Daula Najm Khan (Monin Khan III), who died in A.H. 1205 (A.D. 1790) and his wife Jugni Khanum who died in A.H. 1229 (A.D. 1814); Begam Jan, who died in A.H. 1197 (A.D.1782-83); Fath 'Ali Khan (Momin Khan IV) who died in A.H. 1239 (A.D. 1823); Fakhru' d-Daula Mumtazu'1-Mulk Dilawar Jang Bahadur *alias* Mirza Muhammad Amin Khan Bahadur, son of Baqir Khan, a devoted servant of Muhammad Momin Khan Bahadur Dilawar Jang Dailami, who died in A.H. 1261 (A.D. 1845); and `Ali Yawar Khan Bahadur (brother of Momin Khan IV), governor of Cambay who died in A.H. 1267 (A.D. 1851). Among other deceased persons whose epitaphs were found are: Mir Muhammad 'Ali, who died in A.H. 1264 (A.D. 1848) and who is stated to have been a scion of the Safawid dynasty (of Iran) and Muhammad Rida, the Kotwal, who died in A.H. 1279 (A.D. 1862).

An early nineteenth century inscription from Patan recording the construction of a mosque of moderate size gives its cost as Rupees 550; it was built during the time of Sarfaraz, when Waliu'd-Din was the Nazim (governor) of Patan.

HARYANA

8. INSCRIPTION OF THE MAMLUKS, DISTRICT SONEPAT.—In a published record, dated A.H. 676 (A.D. 1277) in the reign of Ghiyathu'd-Din Balban from Sonepat, the name of the Muqta' of Sonepat was found on re-examination to be Qir Bek beyond any doubt.

9. INSCRIPTION OF LODIS, DISTRICT AMBALA.—This inscription, found at Sadhaura, is fragmentary and damaged: its surviving portion contains the date A.H. 897 (A.D. 1491-92) and refers to the reign of the king Sikandar Lodi.

10. INSCRIPTIONS OF THE MUGHALS, DISTRICTS GURGAON, KARNAL, MAHENDRAGARH AND SONEPAT.—At Panipat, District Karnal, was found a new but fragmentary record of emperor Humayun mentioning Mir Ahmad, a servant of His Highness (Hadrat) Diyau'd-Din Amir Nur; its purport is not known. Another epigraph of the same king was found at Sonepat; it states that a mosque was completed in A.H. 945 (A.D. 1538).

Two new records of emperor Akbar were found at Narnaul, District Mahendragarh: one records the construction of a mosque by Islam Quli Khan, referred to as the Khan of lofty lineage, under the superintendence of Yar Muhammad Agha in A.H. 989 (A.D. 1581); it was inscribed by Muhammad Qasim son of Muhammad Baqir al-Husaini. The other assigns the construction of a 'pleasant building' (the present Hawa-Mahal where it is found) and a tank to Shah Quli Khan, in A.H. 997 (A.D. 1589). A third epigraph of Akbar originally recording that another palatial building (present Jal or Pani-Mahal on which it appears) was constructed by the same Khan in A.H. 999 (A.D. 1590) has been mostly scrapped off in recent times, the surviving portion being the verse containing the chronogram. An inscription of the time of Shah 'Alam II was found at Sohna, District Gurgaon: it records the construction of a Jami 'Masjid by Mir Ma'sum Khan Khusti (i.e. of Khust) in the 15th regnal year of Shah 'Alam II or A.H. 1188 (A.D. 1774).

11. MISCELLANEOUS INSCRIPTIONS, DISTRICTS GURGAON, MAHENDRAGARH AND SONEPAT.—One more piece of an inscription from Sonepat dated A.H. 889 (A.D. 1484),

noticed earlier, was recovered there: it contains a few more verses composed by the deceased and provides a specimen of the pre-Mughal Persian poetry. Another record of Islam Quli Khan recording the construction of mosque in A.H. 990 (A.D. 1582) by him was found at Narnaul; in this he is described as a saintly and learned person. The same Islam Quli Khan is stated to have built an edifice for the advancement of Islam in A.H. 993 (A.D. 1585). These records of Islam Quli Khan tend to explain the name of the Islampura locality of the town. Another interesting new inscription dated in the same year was found at the same place: it records the construction of a mosque which was intended to serve as a school or college as well, by Khwaja Dost, a minister (Asaf-i-Thani). Another epigraph from the same place records the construction of a mosque in A.H. 1044 (A.D. 1634-35) by Lutfu'llah. An epitaph from Firozpur Jhirka records the demise of Abu'l-Qawi in A.H. 1105 (A.D. 1693). Another epitaph from the same place, places the death of Kartalab Khan Bahadur, son of Shaikh Muhammad Asaf in A.H. 1123 (A.D. 1711). One more epitaph from Firozpur Jhirka records the demise of Bibi Buzurg, daughter of 'Abdu'l-Khaliq in A.H. 1129 (A.D. 1717).

KERALA

12. MISCELLANEOUS INSCRIPTIONS FROM DISTRICT MALAPPURAM.—A number of inscriptions ranging in their dates from A.H. 887 (A.D. 1482) onwards but majority of them belong ing to the 18th and 19th centuries, were found in various places in the district. A striking feature of these records is that their language is throughout Arabic with the local language in Arabic characters in a few of them. They mostly record the construction of mosques.

MADHYA PRADESH

13. INSCRIPTION OF THE SURS, DISTRICT CHHATARPUR.—The inscription on a gun preserved in the Archaeological Museum, Dhubela, revealed that it was manufactured by Sayyid Ahmad Rumi in the reign of Sher Shah. The date of manufacture is engraved thereon in words as A.H. 900 (A.D. 1494-95) instead of the likely year A.H. 948 (A.D. 1541-42), the date on similar guns stored in the Indore Museum.

14. INSCRIPTIONS OF THE MUGHALS, DISTRICTS EAST NIMAR, GWALIOR AND SEHORE.—An unnoticed epigraph of Shah Jahan assigning the construction of a mosque to Mihtar 'Abdu'llah Najabat Khani in A.H. 1064 (A.D. 1654) was found at Bhander, District Gwalior; it gives the name of Usta Chand as the supervisor of the construction. Two new records of Shah Jahan were found at Asirgarh, District East Nimar: one records the construction of some structure in his 27th regnal year or A.H. 1063 (A.D. 1652-53) and the other the construction of a raised battery in the fort in A.H. 1065 (A.D. 1654-55), both at a time when Manohar Das Gaur, son of Raja Mandhata, was the *Qala'dar* of the fort. A damaged epigraph of Muhammad Shah was found at Ichhawar, District Sehore: it refers to the construction of the step-well by Nawwab Yar Muhammad Khan in the 19th Regnal Year (i.e. A.H. 1150 = A.D. 1737), Fasli 1144 and Vikrama 1794.

15. MISCELLANEOUS INSCRIPTIONS, DISTRICT UJJAIN.—A couple of inscriptions recording the death of Haji Salih who is described as a man of great virtue and fame and his wife Zuhra and extolling their virtues, were found at Ujjain; they died in A.H. 828 (A.D. 1525-26). Also was found at the same place a new and one more inscription of the time of the governorship of Nawwab Mukhtar Khan; it records the construction of a step-well by

his servant Khwaja Shakib in A.H. 1110 (1698-99 A.D.). Another epigraph of Khwaja Shakib, recording the construction of a mosque and a *madrasa,* in the following year was earlier noticed (1963-64, p. 78).

MAHARASHTRA

16. INSCRIPTIONS OF THE MUGHALS, DISTRICT AKOLA.—Re-examination of two published inscriptions from Akola yielded almost complete decipherment according to which the Hawa-Khana bastion was built during the reign of Akbar Shah II and during the governorship and *jagir*-holding of Nawwab Salih Muhammad Khan Bahadur in A.H. 1225 (A.D. 1810).

PUNJAB

17. INSCRIPTION OF MAMLUKS, DISTRICT PATIALA.—A badly-damaged inscription deposited in the State Museum, Patiala, was on examination found to be an unnoticed epigraph of Ghiyathu'd-Din Balban, recording the construction of a mosque. The name of the builder and the date are illegible. It is reported to have been brought from Karnal.

RAJASTHAN

18. MISCELLANEOUS INSCRIPTIONS, DISTRICT SAWAI MADHOPUR.—A bilingual and damaged epigraph exempting from levy and octroi goods, etc. of the *Baitu'l-Mal* and the Patal-Bhog by the order of the great Raja Nawwab Raja Jagannathjiu, was found at the Ranthanbhore Fort. It also mentions a few officials like the Raja's deputy Khwaja Bhopindra Singh, Rana Chonda Jiu, the Shiqdar, and Miyan Burhan, the Kotwal of the fort. It is dated A.H. 1006 (A.D. 1598). At the same place was found another epigraph, also damaged, stating that in A.H. 1022 (A.D. 1613) Maharaj Kunwar Mohan Das came to the said fort and ordered remission of *Zakat* etc. in the Haveli and Telehti *parganas.* The Chaudharis, Kotwals, and Qanungos were ordered not to trouble the public on that account. There is one more similar record in the same fort but it is too damaged to yield decipherment.

UTTAR PRADESH

19. INSCRIPTIONS OF MUGHALS, DISTRICTS ALLAHABAD, BANDA AND HAMIRPUR.—Impressions of the published epigraph of Jahangir dated in his 1st regnal year or A.H. 1014 (A.D. 1605) and containing the genealogy of the king, were prepared. It is engraved by the famous calligrapher 'Abdu'llah Mushkin Qalam on the stone pillar in the Fort at Allahabad. Another published record of Jahangir from Allahabad mentioning the excavations of a well under the supervision of his faithful servant Muhammad Rida the Musawwir was also copied. A new epigraph of Aurangzeb was found at Kalinjar, District Banda: it records the construction of a mosque in A.H. 1071 (A.D. 1660-61). Another hitherto unnoticed inscription of Aurangzeb assigning the construction of a mosque and excavation of a well in A.H. 1076 (A.D. 1665-66), by Khwaja Firuz was found at Rath, District Hamirpur.

One more record of Aurangzeb was found at Kalinjar, according to which, a strong gateway was constructed and the repairs to the fort were carried out by Muhammad Murad

at the instance of the emperor in A.H. 1084 (A.D. 1673-74). According to another epigraph of the same emperor, found at Badausa, in the same district, a mosque was built by Mir Kamal, through the help of Yakka Taz Khan in A.H. 1103 (A.D. 1692).

A solitary inscription each of Farrukh Siyar and Shah 'Alam II, dated A.H. 1128 (A.D. 1716) and dated A.H. 1178 (A.D. 1765), was found at Kalinjar: both record the construction of mosques.

A record of Bahadur Shah II from the same place records the construction of a mosque by one Zorawar in A.H. 1262 (A.D. 1845-46).

20. MISCELLANEOUS INSCRIPTIONS, DISTRICTS ALLAHABAD AND BANDA.—A record from Augasi, dated A.H. 989 (A.D. 1581-82) stating that Shah Quli Sultan constructed many mosques at various places but the mosque built by him at Agwasi (as the place-name is spelt in the text) was peerless. An epitaph from Katra refers to the death of Mirdha Natthu Mir Khani who died in A.H. 1145 (A.D.1732). An inscription from Phulpur, District Allahabad, records the construction of a well by Haji Karim Bakhsh, son of Qadir Bakhsh, the Tabbaco-merchant, in A.H. 1168 (A.D. 1758).

III. NUMISMATICS AND TREASURE TROVE[1]

GUJARAT

1. SILVER COINS, NAVASARI, DISTRICT BANAS KANTHA.—A hoard of two hundred and fifty-three silver coins were acquired as treasure trove from the village.

2. VICTORIA COINS, LIMBUDA, DISTRICT JUNAGADH.—Three coins of Victoria were found during scarcity relief work.

3. BRITISH COINS, VISAVADAR, DISTRICT JUNAGADH.—A hoard of one hundred and four coins of Victoria and Edward was found.

4. ANCIENT COINS, DEVAGAM, DISTRICT KHEDA.—Five coins of Gupta and Sarvabhattaraka rulers were discovered at Devagam.

5. GADHAIYA COINS, RAHIYAL, DISTRICT SABAR KANTHA.—A hoard of Gadhaiya coins, weighing 123.6 kg was found from the village Rahiyal.

KARNATAKA

6. MISCELLANEOUS COINS AND ORNAMENTS, AIHOLE, DISTRICT BIJAPUR.—One hundred and ten gold coins of Ganga and Chalukyas of Kalyani, along with two bracelets, were found as treasure trove.

7. COINS AND OTHER OBJECTS, CHIKKAKAMARAVALLI, DISTRICT MYSORE.—A hoard, consisting of gold and silver objects including four large and forty-seven smaller coins bearing Persian and Arabic legends, was discovered at Chikkakamaravalli in Taluk Periyapatna.

MADHYA PRADESH

8. MUGHAL COINS, HATTA, DISTRICT DAMOH.—Twelve silver coins consisting of issues of Shah Jahan, Aurangzeb, Shah Alam, Muhammad Shah, Ahmad Shah and Bahadur Shah, were found at Balajiward, Hatta.

9. ROMAN COIN, MEMADAKHEDI, DISTRICT SEHORE.—A Roman gold coin, showing the bust of a bearded king on the obverse and a standing winged goddess on the reverse, was discovered.

[1] Information from: 1 to 5, the Director of Archaeology, Gujarat State; 6, 7, the Director of Archaeology and Museums, Karnataka State; 10 to 32, the Department of Archaeology, Maharashtra State; and the rest from the Superintending Archaeologist of the Central Circle of the Survey.

MAHARASHTRA

10. BRITISH COINS AND SILVER ANKLETS, IMAMPUR GHAT, DISTRICT AHMADNAGAR.—Eight silver coins of Victoria and Edward VII and two silver anklets were found as treasure trove.

11. VIJAYANAGARA COINS, GANDEGAON, DISTRICT AHMADNAGAR.—A hoard comprising thirteen gold coins (*Pagodas*) of Hari-Hara II of Vijayanagara dynasty was discovered.

12. MUGHAL COIN, PATUR, DISTRICT AKOLA.—A gold coin issued by Shah Jahan was collected as treasure trove find.

13. KUSHAN COIN, KATANGI, DISTRICT BHANDARA.—Eight copper coins of Huvishka were acquired as treasure trove.

14. WESTERN KSHATRAPA COINS, SAKOLI, DISTRICT BHANDARA.—Three hundred and sixty-three silver issues of Western Kshatrapa rulers and a piece of silver were acquired as treasure trove finds.

15. GOLD PAGODA AND SILVER COIN, FORT DHARUR, DISTRICT BIR.—Twelve gold pagodas of Sri Pratapadeva Raya of Vijayanagara and one silver coin of Bahamani ruler Firuz Shah were received as treasure trove finds.

16. GOLD COIN AND ORNAMENTS, KHANDEWADI, DISTRICT BIR.—One gold coin of an Egyptian ruler and seven gold ornaments were found as treasure trove finds.

17. MISCELLANEOUS COINS AND ORNAMENTS, CHAMORSHI, DISTRICT CHANDRAPUR.—A hoard, containing one gold pagoda of Sri Pratapadeva Raya, twenty-three silver coins of Aurangzeb and four gold ornaments including armlet, chain and ear ornaments, was received.

18. MEDIEVAL COINS, NALFADI, DISTRICT GHANDRAPUR.—A hoard of two hundred and seventy copper coins, belonging to Bahamani and Nizam Shahi rulers, was received.

19. MUGHAL COINS, AMBA, DISTRICT DHULE.—One hundred and four silver and one copper coins, including issues of Jahangir, Shah Jahan and Aurangzeb, were acquired as treasure trove.

20. COPPER COINS, KARLE, DISTRICT DHULE.—Thirty-two copper issues of Muhmud Shah I of Surat were obtained under the Treasure Trove Act, 1878.

21. MUGHAL COINS, SHAHANE, DISTRICT DHULE.—Twenty-six silver issues of Jahangir and Aurangzeb were acquired as treasure trove.

22. MUGHAL COINS, CHICHOLI, DISTRICT NAGPUR.—A hoard of sixty-two silver coins of Aurangzeb was collected.

23. MUGHAL COINS, PATAN SAWANJI, DISTRICT NAGPUR.—A hoard, comprising ten silver issues of Shah Jahan, Aurangzeb and Muhammad Shah, was found.

24. BRITISH COINS, SAONER, DISTRICT NAGPUR.—Sixty-two silver rupee coins, variously of Queen Victoria, Edward VII and George V, were obtained as treasure trove finds.

25. GOLD PAGODAS, ANDGA, DISTRICT NANDED.—A treasure trove, comprising six gold pagodas of Vijayanagara ruler Pratapadeva Raya, was obtained.

26. PADMATANKAS, CHANDWAD, DISTRICT NASIK.—Five gold *padmatankas* of Western Chalukya ruler Jayadekamalla were received under the Treasure Trove Act.

27. COPPER VESSELS, KULYANDI, DISTRICT NASIK.—Four copper vessels of Gujarat Sultans were received.

28. MUGHAL COINS, MORANE SANDS, DISTRICT NASIK.—A hoard containing one hundred forty-eight silver coins of Aurangzeb, Shah 'Alam, Farrukhsiyar, Shahjahan II, Muhammad Shah and Shah 'Alam II were acquired as treasure trove finds.

29. MARATHA COINS, DEUR, DISTRICT SATARA.—A hoard of two hundred and seventy-four silver coins, issued in the name of Ali Gauhar, was collected.

30. MUGHAL COINS, VATANE, DISTRICT SATARA.—A hoard, comprising fifty-one silver issues of Aurangzeb, was acquired.

31. BRITISH COINS, NANPADA, DISTRICT THANA.—Six hundred and forty copper coins, issued by British East India Company, Edward VII and George V, were found as treasure trove.

32. MISCELLANEOUS COINS, VANAI, DISTRICT THANA.—A hoard, consisting of seven gold and seven silver coins of Vijayanagara rulers, one hundred and sixty-three silver*laries* including eight Rials, two hundred copper coins of Gujarat Sultanate and a copper pot, was found as treasure trove.

IV. OTHER IMPORTANT DISCOVERIES

BIHAR

1. MEDIEVAL BRICK WELL, MONGHYR, DISTRICT MONGHYR.—Shri Birendra Nath of the Survey noticed a brick well, on the road side of Belan Bazar, with an inscription in Arabic mentioning one Maksas Khan as its builder.

2. ANCIENT MOUND, SANDALPUR, DISTRICT MONGHYR.—Shri Birendra Nath of the Survey noticed a huge brick structure on a mound containing large quantities of bricks.

3. PALA SCULPTURES, DISTRICT NALANDA.—Shri P. K. Sharan of the Survey discovered a large number of Pala sculptures at Badgaon including images of Marichi, Buddha, Surya, Vishnu, Tara, Hara-Gauri, *chaturmukha* Siva-*linga* and Ganesa in different sizes. Images of Avalokitesvara, Vishnu, Hara-Gauri and Buddha in *bhumisparsa-mudra* were also found at Surajpur. At Machchaldiha, he found several sculptures including a Dhyani-Buddha, a broken head of Vishnu, Maitreya and Avalokitesvara, besides votive *stupas.* Sculptures of Jaina *yakshi* Padmavati, Dhyani Buddha, Ganesa and votive *stupas* were also noticed at Mokarampur. An image of Buddha in *bhumisparsa-mudra* was found at Mirchaiganj and Mohammadpur. At Pachawara, he noticed a number of images including a crowned Buddha in *bhumisparsa-mudra,* a panel depicting the scenes from the life of Buddha, and triple-faced Marichi, Buddha, Tara and Jambhala. Images of crowned Buddha and seated Avalokitesvara were discovered respectively at Lodipur and Tajubigha by him.

Shri P. K. Sharan located an image of Buddha with an inscription, ascribable to about the ninth-tenth century A.D. at Mohanpur. At Mustafapur, he noticed another Buddha image of the Pala period in preaching attitude seated in *pralambapada-mudra* with lion figures on either side.

4. LATE PALA SCULPTURES, KOSHLA, DISTRICT NAVVADAH.—Shri D. P. Sinha of the Survey found a large number of late Pala sculptures representing Brahmanical and Buddhist deities. Amongst the Brahmanical images a figure of Vishnu with all the four-hands downwards is interesting.

5. ANCIENT SITE, SAKALIOARH, DISTRICT PURNEA.—An ancient site with traces of fortification was discovered by Shri D. P. Sinha at Sakalingarh. A polished Mauryan column, rising 2.5 m above the ground level, with a socket at the top (diameter 90 cm), was also noticed adjacent to a brick *stupa* outside of the fortified area. The site has also yielded Kushan terracottas.

GUJARAT

6. TERRACOTTA SKIN RUBBER, KALSAR, DISTRICT BHAVNAGAR.—A terracotta skin rubber with an inscription reading *bhadikko* in Mauryan Brahmi was found in a private farm near Kalsar.

MADHYA PRADESH

7. OLD SEALS, MANDU, DISTRICT DHAR.—Four old seals, one each of copper and stone (pl. XLVII A and D) and two of brass (pl. XLVII B and C), bearing Persian inscriptions of the Medieval (Indo-Islamic) period, were discovered at Mandu.

8. MEDIEVAL BRASS THRONE, MANDHATA, DISTRICT EAST NIMAR.—An inscribed brass throne (*simhasana)* of the Medieval period was discovered at Mandhata (pl. XLVIII). The central figure seated on the *simhasana* has not been found. The inscription is in Nagari and dated Samvat 1241 (A.D. 1184).

9. STONE AGE TOOLS, KADWAHA, DISTRICT GUNA,—Sarvashri C. B. Trivedi, B. L. Nagarch and Narayan Vyas of the Survey discovered Early and Middle Stone Age tools, made on quartzite, around Kadwaha.

10. GUPTA SCULPTURES, PAWAYA, DISTRICT GWALIOR.—Shri B. L. Nagarch of the Survey noticed a stone sculpture of Buddha in *dharmachakra-pravartana-mudra,* of the Gupta period (pl. XLIX A).

11. MEDIEVAL COPPER IMAGE, BIJAMANDAL, DISTRICT VIDISHA.—A copper figure of a two-armed *devi* holding *trisula* and a mutilated attribute (pl. XLIX B) was found by Shri A. P. Sagar of the Survey at Bijamandal. The image seems to belong to the Medieval period.

ORISSA

12. MUGHAL INSCRIPTIONS, JAJPUR, DISTRICT CUTTACK.—Shri K. N. Dikshit of the Survey noticed two inscriptions of the time of Aurangzeb on the central bay of the Shahi Masjid at Jajpur.

UTTAR PRADESH

13. TERRACOTTA SEAL, BHIRA-DIH, DISTRICT AZAMGARH.—A terracotta seal, containing the fire-alter motif and an inscription in Brahmi characters *of circa* second-third century, was discovered at Bhira-dih.

WEST BENGAL

14. MICROLITHIC SITE, GHURGHUTIPARA, DISTRICT BURDWAN.—A mound known as Thol near Burnpur, which yielded microlithic blades and flakes of quartz, chalcedony, flint and chert from the top of a gravel bed, was located by Shri V. Sen of the Survey.

15. MICROLITHIC SITE, KALAJHARYA, DISTRICT BURDWAN.—Shri V. Sen noticed a few microlithic tools and flakes of quartz and chalcedony at Bobathan in village Kalajharya, near Burnpur town.

V. RADIOCARBON DATES[1]

The radiocarbon dates presented here were determined at the Physical Research Laboratory, Ahmadabad,[2] and pertain to samples measured during the year under review.[3] The dates are based on radiocarbon half-life value of 5730 ±40 years. For conversion into B.C./A.D. scale, 1950 is the base year. The sites are arranged Statewise.

GUJARAT

1. AMBAMATA, DISTRICT BANAS KANTHA

PRL-66. Copper mining area; wood; locus: borehole 100; depth 62 m; field no. AC-2. Na OH pre-treatment given.	850±100 (A.D. 1100)

2. PRABHAS PATAN, DISTRICT JUNAGADH

PRL-92. Period II; charcoal; locus: trench D6-7, layer 14; depth 4.85 m; field no. 495. Na OH pre-treatment given.	3940±100 (1990 B.C.)
PRL-91. Period III; charcoal; house 9; locus : trench C4, layer 10; depth, 3.30 m; field no. 421. Na OH pre-treatment given.	3970±170 (2020 B.C.)
PRL-90. Flood deposit ; charcoal; locus: trench D 6, layer 16; depth, 6.5 m; field no. 506. Na OH pre-treatment given.	4360±115 (2410 B.C.)

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[1] Contributed by Dr D. P. Agarwal, Shri R. V. Krishnamurthy, Kumari Sheela Kusumgar and Dr R. K. Pant.

[2] This was previously undertaken by the Tata Institute of Fundamental Research, Bombay, which wing has since been transferred to the Physical Research Laboratory (PRL), Navrangpura, Ahmadabad.

[3] Samples submitted by: 1, Mineral Exploration Corporation, Nagpur; 2 and 5, the Deccan College and Postgraduate Research Institute, Pune; 3, 6 and 7, by the Director General, Archaeological Survey of India, New Delhi; 4, The Vikram University, Ujjain; and 8, the Banaras Hindu University, Varanasi.

3. SURKOTADA, DISTRICT KUTCH

PRL-85. Harappa culture ; charcoal; locus: trench ZFI, Qd. 2, layers 13 and 14; depth, 4-85 m; field no. 21.	4365±135 (2315 B.C.)

MADHYA PRADESH

4. BHIMBETKA, DISTRICT RAISEN

PRL-49. Burials; charcoal; locus: trench III F-16; lower part of skeleton no. 1; sample no. 5. Comment: rootlets present. Na OH pre-treatment given.	Modern
PRL-51. Burials; charcoal; locus : from earth filling of pit of burial no. 2; sample no. 7. Comment: rootlets present. Na OH pre-treatment given.	2105±115 (155 B.C.)
PRL-50. Burials; charcoal; locus : from pit of burial no. 3, trench 111-13; depth/3-10 cm; sample no. 6. Comment: rootlets present. Na OH pre-treatment given.	6025± 110 (4075 B.C.)

MAHARASHTRA

5. INAMGAON, DISTRICT PUNE

PRL-57. Period III; charcoal; locus : trench INM-I, D 8, layer 3; depth, 0.75 m; field no. INM-I, 884, D 8 (3). Na OH pre-treatment given.	1340±110 (1190 B.C.)
PRL-59. Period I; charcoal; locus : trench INM-I, H 8, layer 16; depth, 4.18 m; field no. INM-I, 1328, H 8 (16). Na OH pre-treatment given.	3300±110 (1350 B.C.)

PRL-76. Periods II-III overlap; charcoal, locus: G 8, layer 7; depth, 75 cm; field no. 1094. Comment: rootlets present. Na OH pre-treatment given.	3300±110 (1355 B.C.)
PRL-133. Period I; charcoal; locus : trench INM-II, layer 3; depth, 30 cm; field no. INM-II, 1330, (3). Comment: rootlets present. Na OH pre-treatment given.	3320±110 (1370 B.C.)
PRL-77. Period I; charcoal; locus : H 8, Layer 15; depth, 3.20 m; field no. 1324. Comment: rootlets present. Na OH pre-treatment given.	3400±115 (1450 B.C.)

TAMIL NADU

6. CAPE COMORIN, DISTRICT KANYAKUMARI

PRL-58. Eustatic oscillation; coral from 6-m terrace.	$34240 \begin{smallmatrix}+2505\\-1895\end{smallmatrix}$ (32290 B.C.)

UTTAR PRADESH

7. ALLAHPUR, DISTRICT MEERUT

PRL-83. P.G. Ware-N.B.P. Ware; wood; locus : trench Al, Qd 4, layer 5; depth, 1.10 m; field no. ALP/4/70-71.	2225 ±110 (275 B.C.)
PRL-81. P.G.Ware; charcoal; locus: trench Al, Qd. 1, layer 11, depth, 2.30 m; field no. ALP/2/71.	2335 ±95 (385 B.C.)

8. TEKIAPAR, DISTRICT VARANASI

PRL-47. Period I (NBP levels); wood; locus : trench AO, layer 5; depth, 1.2 m. Comment: rootlets present. Apparently the sample belongs to much older tree and shows post-sample growth error. Na OH pre-treatment given.	4730 ±125 (2780 B.C.)

VI. MUSEUMS

1. ALLAHABAD MUSEUM, ALLAHABAD.—During the year under review the Museum acquired: (i) two clay sealings from Kausambi, of which one bearing the legend *Rajna Kautsiputra Praushtha Sriyab* being first of its kind; (ii) a fragment of a brick, bearing an inscription reading *Amachasa Asva* (*ghodhasa*) in Brahmi characters of *circa* second-third century A.D. ; (iii) a round block of stone with a socket on the lower surface and an inscription, reading *Amachasa Solakajanasa Bhuti-lasa Putasa Bhavaye Pavavilasa Miyikaya Vidayapiyaye Kulakam,* written in Brahmi characters of *circa* second-third century A.D. at the tip; and (iv) ten Kausambi copper coins of different varieties.

2. ARCHAEOLOGICAL MUSEUM, AMARAVATI.—A part of the railing of the *Mahachaitya* with the gateway, measuring 15.85 m in length, was constructed in the Museum court yard. It is in the original size; the cement casts are from the railing parts now in the Government Museum, Madras. Along with the scale-model of the *chaitya,* it gives an idea about the colossal size of the original *Mahachaitya* which was nearly five times the railing.

3. SHRI BHAVANI MUSEUM AND LIBRARY, AUNDH.—During the period under review one cannon ball of the Maratha period was presented by Shri Prabhakar Pacchade. The galleries were provided with some new and improved showcases and pedestals.

4. BASAVAKALYAN MUSEUM, BASAVAKALYAN.—Thirty-five sculptures scattered around the village of Narayanpur and belonging to *circa* twelfth century A.D. were received in the Museum.

5. ORISSA STATE MUSEUM, BHUBANESWAR.—During the period under review four copper plates relating to Ganga dynasty, three hundred and ninety-six manuscripts, thirty-nine specimens for Natural History Section, eighty-one art and craft specimens were added to the collection of the Museum.

6. ARCHAEOLOGICAL MUSEUM, BIJAPUR.—About three hundred and fifty photographs of antiquities were captioned subjectwise and arranged in albums.

7. ARCHAEOLOGICAL MUSEUM, BODHGAYA.—Preparation of cement casts of the original Sunga railings is in progress and seventy-seven pillars, out of eighty-four, have been cast.

8. PRINCE OF WALES MUSEUM, BOMBAY.—During the year under review the museum acquired: two black stone sculptures of Vaikuntha Chaturmurti from Kashmir belonging to *circa* ninth century A.D. ; a sculpture of a female musician in sandstone from Madhya Pradesh, belonging to *circa* eleventh century A.D. ; two Vishnu images in sandstone belonging to *circa* twelfth century A.D.; and a Vishnu image in granite of the Chola period.

9. MUSEUM AND ART GALLERY, UNIVERSITY OF BURDWAN, BURDWAN.—TWO elegantly-carved four-armed images of Vishnu in black stone belonging to *circa* eleventh-twelfth century, from Kantagora, District Hooghly, were added to the collection.

10. INDIAN MUSEUM, CALCUTTA.—The Archaeological section of the Museum, during the year under review, acquired through purchase, four copper plates belonging to the Nidhanpur copper-plate grant of king Bhaskaravarman (*circa* seventh century A.D.) and one image of four-armed Parvati from Bengal, belonging to the medieval period.

Under the reorganization programme a number of improvements were done in the display. The mobile exhibition on 'Indian History and Archaeology', arranged in the Museo-Bus, visited various places in West Bengal, Bihar, Uttar Pradesh, Delhi and Chandigarh.

11. LOCAL ANTIQUITIES MUSEUM, CHITRADURGA.—A *sati* stone sculpture from Chitradurga hills was added to the collection.

12. CHANDRADHARI MUSEUM, DARBHANGA.—The museum acquired a large number of terracotta figurines, pots and pottery in various fabrics obtained from the excavation at Balirajgarh and also some ancient paintings.

13. ARCHAEOLOGICAL MUSEUM, RED FORT, DELHI.—Under the reorganization of the Museum the Bahadur Shah Gallery was rearranged. The work in the main gallery is in progress.

14. ASSAM STATE MUSEUM, GAUHATI.—A pillar-bracket carved with three flying *gandharvas* belonging to *circa* tenth century A.D., exposed by the erosion of the river Brahmaputra near the Asvakalanta temple near the ferry-ghat, Gauhati and a massive sandstone Nataraja belonging to *circa* thirteenth century A.D., discovered in the excavation at Ambari, were added to the collection of the Museum.

15. GOVERNMENT MUSEUM, GULBARGA.—A large number of sculptures, belonging to *circa* second century B.C. and the eleventh century A.D. were acquired for the museum.

16. ARCHAEOLOGICAL MUSEUM, HALEBID.—Twenty-seven sculptures of the Hoysala period, notable among them being Vishnu, Bhairava and Venugopala, have been acquired for the Museum. Card-indexing of the entire collection has been completed.

17. ARCHAEOLOGICAL MUSEUM, HAMPI.—Reorganization work of the Museum in the new building has been taken up. The division of the galleries is based on architectural and sculptural features. The sculptures, selected for display, were chemically treated and broken ones mended.

18. STATE MUSEUM AND CONTEMPORARY ART PAVILION, HYDERABAD.—The electrification of the showcases including the production of day-light effect on the miniature paintings is in progress.

19. MANIPUR STATE MUSEUM, IMPHAL.—During the period under review, a copper plate of early nineteenth century A.D. belonging to Maharaja Chandrakirti Singh of Manipur, and some bell metal coins of eighteenth century A.D. with the legend *Maharajah Garibniwaz* in Devanagari characters, found at Bishenpur, Central District, and two neolithic celts collected from Churachandpur, South District, were added to the archaeological collection of the Museum. Besides, some old and valuable textiles and metal household

objects of Koireng tribe of Manipur, were acquired for the Ethnological Section of the Museum. Steps are being taken to set up a Natural History Section in the Museum.

20. ANDHRA SAHITYA PARISHAD GOVERNMENT MUSEUM AND RESEARCH INSTITUTE, KAKINADA.—The Department of Archaeology and Museums, Government of Andhra Pradesh, took over the above Museum in June 1973. The palm-leaf and paper manuscripts and copper-plate grants issued by kings of some ancient dynasties form a very valuable collection. Besides, there are about one hundred and thirty-five coins issued by several dynasties of Andhra-desa such as Satavahanas, Vishnukundins, Eastern Chalukyas and other Muslim dynasties, namely Qutub Shahis of Golconda and Asaf Shahis of Hyderabad. A descriptive catalogue was under preparation during the period under review.

21. ARCHAEOLOGICAL MUSEUM, KENDULI.—The museum, built in commemoration of the famous poet Jayadeva, contains ten sculptures of Vishnu, Siva and other Buddhist deities.

22. ARCHAEOLOGICAL MUSEUM, KHAJURAHO.—One hundred and thirty-eight pieces of sculptures, collected locally, were acquired. Re-arrangement of the sculptures in the open-air Museum, being the reserve collection, is in progress.

23. KOLHAPUR MUSEUM, KOLHAPUR.—The display in the Excavation Gallery was improved by providing new showcases. Four water-colour paintings by Shri S. Chafalkar of Bombay and one oil painting by Shri Vilas Sular were purchased. A special exhibition of thirty paintings of late Baburao was arranged from 16 to 22 January 1974.

24. ARCHAEOLOGICAL MUSEUM, KONARAK.—Two hundred and seventy-three loose architectural fragments have been shifted from the Sun Temple compound to the Museum to ensure their safety.

25. ARCHAEOLOGICAL MUSEUM, KONDAPUR.—The Museum has acquired two hundred copper and sixty-seven silver coins of the Muslim period. Some medieval sculptures including a female deity, a sculptured fragment showing lotus design with *chhatravalis* and a carinated bowl at the top, probably belonging to the second-third century B.C., a fragment with two female figures of the same period, and a brick of 53x53 x 9 cm from the nearby site were also acquired. Besides, some early Satavahana sculptures found while digging a well in fields, were also added to the collection of the Museum.

26. STATE MUSEUM, LUCKNOW.—An intricately-carved and sword-shaped sandal wood *Kharita* for keeping secret documents, a terracotta human figure, probably a Yaksha of Kushan period, a fragmentary plaque with a winged deity, probably Kamadeva of Sunga period, three sealings, three hundred and eighty Kshatrapa silver coins and five terracotta figurines were acquired for the Museum. Besides reorganization of galleries, a seminar on Decorative Art was also held and a temporary exhibition on the subject was organized to mark the occasion.

27. FORT SAINT GEORGE MUSEUM, MADRAS.—Sixty-six objects were acquired for the Indo-French and Wodeyar Galleries. The French Gallery was recently declared open.

Display was considerably improved in Gallery no. 5. Reserve collections were re-arranged scientifically for easy reference.

28. GOVERNMENT MUSEUM, MADRAS.—One stone image of *dvarapalaka* from Tirucherai, District Thanjavur, and three oil paintings by late Thiru Lakshmi Retan were received as gifts to the Museum.

A number of old labels were renewed and thirty-nine paintings in the sloping cases in the National Art Gallery were framed and re-exhibited.

A special exhibition of the 'Latest Additions' was held for two months.

29. SREEMANTI BAI MEMORIAL GOVERNMENT MUSEUM, MANGALORE.—An artistic and antique vessel of bronze was presented to the Museum by Shri Raj Saldhan. Dr Satya Shankar, a local artist, also presented his personal collection of books, journals and picture postcards to the library of the Museum.

30. GOVERNMENT MUSEUM, MATHURA.—Fifty-two objects including terracotta figurines and fourteen sculptures from Chaurasi Khamba temple of Mahaban (Mathura), and coins, including a hoard of hundred punch-marked coins purchased from a local dealer, were acquired during the year under review. Amongst them, the following are noteworthy: (i) a terracotta standing figure of mother goddess (17.5 cm in height) belonging to *circa* third century A.D., from the Bharatpur mound near Museum, and having traces of applique rosette decoration on the head, collar with a central drum-shaped bead and a plain girdle; (ii) a headless Buddha in buff stone, wearing a *ubhayansika sanghati,* holding the hem of the drapery in the left hand and the right hand in *abhqya-mudra,* sitting in *padmasana* on a lion-throne which bears a meditating Bodhisattva (?) flanked by two worshippers on each side, belonging to the Kushan period, from Gokarnesvara temple, Mathura; (iii) a bust probabty of Agni, in red spotted sandstone measuring 22 x 19 cm, belonging to the Kushan period; (iv) a fragment of a water-chute (pl. LA), carved with a fish-tailed crocodile figures with wide open jaws, sharp teeth and long tongue on either side, from Beswa (Aligarh), belonging to the Kushan period; and (v) a lintel-panel (pl. L B), measuring 0.25 x 1.02 m, representing Navagrahas, etc., in buff stone from Chaurasi Khambha temple, belonging to the Medieval period.

A part of the excavated material from Sonkh, which forms the share of the Indian Government, was taken over by the Museum from the West German Archaeological Mission. The collection includes pottery ranging from the Painted Grey Ware level to the Mughal period, sculptures (pl. L C) from the early shrine, particularly from the Vega temple, some rare specimens of bronzes of the Kushan period, iron implements, inscribed seals and sealings, beads, variety of terracottas, coins (mostly copper) and a few other objects.

The centenary week of the institution was celebrated by organizing a seminar on the Kushan Art of Mathura and holding an exhibition highlighting the traditional folk arts of Braj such as Sanjhi, Tesu, Jhanghi, Banana-stem work, etc., and arranging several cultural programmes in the evenings. The centenary year also marks the change of the name of the institution as Government Museum, Mathura.

31. DISTRICT MUSEUM, MERGARA.—An image of Devi, measuring 92 cm, having intricately-carved ornamentation, was added to the Museum. Besides, ten records belonging to the Coorg Rajas, of which seven belonging to Virarajendra Wodeyar and three to Linga Raja Wodeyar, were also acquired.

32. ARCHAEOLOGICAL MUSEUM, NAGARJUNAKONDA.—Translation and transliteration of some of the inscriptions were provided for the better understanding of the general public. One of the galleries was partitioned to rearrange the reserve collections.

33. CENTRAL MUSEUM, NAGPUR.—A sculpture of Surya, belonging to *circa* thirteenth-fourteenth century A.D. from Katol, District Nagpur, was acquired. The display of the copper plates in the Gallery was improved. The catalogue of Mughal Coins (Part II) in Central Museum was published. A temporary exhibition of photographs of sculptures, monuments, etc., representing the 'Cultural Heritage of Maharashtra' was organized at the time of Indian Science Congress Session in the University campus.

34. ARCHAEOLOGICAL MUSEUM, NALANDA.—Repainting of the Gallery-walls was completed.

35. NATIONAL MUSEUM, NEW DELHI.—During the year under review, twenty-nine sculptures, seventy-three terracotta figurines and ninety-two bronzes were acquired for the Archaeological Section of the Museum. Amongst the sculptures, the notable are the images of Rama, Lava and Kusa and the sacrificial horse, executed during the Pallava-Chola transitional period (*circa* ninth century A.D.), a Vishnu of the Pallava period from south India, Revanta from Bihar and Nataraja from Orissa (pl. LI A). Amongst the important terracottas, mention may be made of a Yakshi from Kausambi and a Yaksha (pl. LI B) of the Satavahana period from Kondapur. The bronze image of Vishnu (eleventh century A.D.) flanked by Lakshmi and Sarasvati (pl. LI C), is one of the finest examples of the Pala period. Besides, the images of Mahisasuramardini-Durga, Garudarudha Vishnu, Hara-Gauri, Lokanatha and *sthanaka* Vishnu were also acquired.

The Archaeology Section of the Museum donated twenty stone sculptures, belonging to different schools, for setting up a new State Museum at Simla. Five stone sculptures were sent to the Museum of Fine Arts at Leiden under the exchange programme.

The Section also participated in arranging special exhibition to commemorate the 400th anniversary of Goswami Tulsidas by providing sculptures, terracottas and bronzes.

36. PATNA MUSEUM, PATNA.—Two mutilated buff sandstone images of mother goddess Indrani with a child in her lap and the *vahana,* the elephant, depicted on the pedestal, and Chamunda, belonging to the post-Gupta period, found during the excavation of a canal near Matar, District Rohtas, were presented to the Museum by Shri S. Prasad, Chief Engineer. One stone image of Vishnu, in basalt, of the Pala period was presented by Shri Anup Pooman. Besides, fourteen terracotta figurines, six copper coins, one silver coin, forty-three broken earthen pots, one conch shell, etc., were also acquired. These were found during construction work of the Ganga Bridge at Mirdhatoli, Gulzabagh, Patna.

37. R. S. R.. GOVERNMENT MUSEUM, RAJAHMUNDRY.—The extension of the Museum building to house the office and for providing electricity connexion for the extended portion is in progress.

38. ARCHAEOLOGICAL MUSEUM, SANCHI.—The Museum has acquired one copper coin with Persian and Arabic inscriptions and a lion's head in red sandstone, of late Medieval period. One thousand two hundred index cards were prepared in duplicate.

39. ARCHAEOLOGICAL MUSEUM, SARNATH.—Labels of all the exhibited antiquities have been re-painted and missing ones replaced. Teak-ply coverings of the pedestals and showcases were changed. Reserve collection was re-arranged.

40. SHRI CHHATRAPATI SHIVAJI MAHARAJ MUSEUM, SATARA.—During the year under review three glass paintings were received from Shri T. R. Bhonsle of Nandoshi Math. Besides, one small decorated vessel, thirty-three miniature paintings and one wooden image were purchased.

41. GOVERNMENT MUSEUM, SHIMOGA.—During the year under review, a number of sculptures such as Vishnu, Mahishasuramardini, Gajalakshmi, Kumara Karttikeya, *dvarapalas,* assignable to *circa* twelfth-thirteenth century, were collected from the forest area in Shikaripur Taluk.

42. ARCHAEOLOGICAL MUSEUM, SRIRANGAPATNA.—A copper two-paisa coin of Tipu Sultan was acquired. This was found in the premises of Daria Daulat. Documentation work was completed.

43. BHARAT KALA BHAVAN, VARANASI.—During the period under review the Museum acquired forty-six punch-marked coins and three hundred ninety-three stone beads, some of them animal-and bird-shaped, all from Kausambi. Sixty-eight stone sculptures and terracotta figurines were also acquired. Amongst them, a fragmentary terracotta figurine of Chamunda, measuring 27x19.5 cm, belonging to *circa* sixth century A.D. from Kausambi, a damaged terracotta plaque, showing two males and a female, measuring 35 X 30 cm, belonging to *circa* seventh century A.D., and a grey sandstone Jyeshtha, measuring 76 X 39 cm, of *circa* thirteenth-fourteenth century A.D. from some where in south India, are noteworthy.

44. VICTORIA JUBILEE MUSEUM, VIJAYAWADA.—Minor repairs to the building and construction of an office building in the Museum compound were executed during the year under review.

VII. PRESERVATION OF MONUMENTS

MONUMENTS OF NATIONAL IMPORTANCE

CENTRAL CIRCLE

Madhya Pradesh

1. FORT, ATER, DISTRICT BHIND.—The sunken pavement of the courtyard of Diwan-e-Khas was reset, and the broken stone slabs were replaced.

2. CAVES 1 TO 7, BAGH, DISTRICT DHAR.—The approaches to the caves from the riverside were reconditioned and the worn-out platform in front of Cave nos. 3, 4 and 5 was improved by providing toned cement concrete flooring (pl. LII). The debris towards north of Cave no. 2 was removed. The rock-cut sculptures in Cave no. 2 were remodelled (pl. LIII).

3. BAZ BAHADUR PALACE, MANDU, DISTRICT DHAR.—The deteriorated and worn-out floors of halls and rooms were replaced with a layer of lime concrete and the steps of entrance gateway were repaired.

4. CHAMPA BAORI, MANDU, DISTRICT DHAR.—The decayed concrete of the roof was reconditioned by laying a layer of fresh lime concrete.

5. DHARMSALA IN THE COMPOUND OF HOSHANGSHAH'S TOMB, MANDU, DISTRICT DHAR.—The leakage in the roof was stopped by laying fresh layer of concrete.

6. DILAWAR KHAN'S MOSQUE, MANDU, DISTRICT DHAR.—The roof concrete was replaced by a layer of fresh lime concrete.

7. GADA SHAH'S SHOP, MANDU, DISTRICT DHAR.—The area was cleared of debris.

8. KAPUR TALAO AND THE RUINS ON THE BANK, MANDU, DISTRICT DHAR.—The dislodged side wall of the channel connecting Munj Talao was reset by dismantling and reconstructing as per the original.

9. NAHAR JHAROKHA, MANDU, DISTRICT DHAR.—The roof was provided with a fresh layer of concrete. The floor was provided with a fresh layer of brick-bats in lime mortar. While removing debris from the compound medieval structures, presumably latrines, were exposed.

10. ROYAL PALACES, MANDU, DISTRICT DHAR.—A new look was given to the complex by water-tightening, underpinning and replacing damaged floor and roof concrete, etc. The area around was also cleared of debris.

11. FORT, ASIRGARH, DISTRICT EAST NIMAR.—A stone pitched pathway in lime mortar was laid up to Kamar Gate.

12. BIBI-SAHIB'S MASJID, BURHANPUR, DISTRICT EAST NIMAR.—The pulverized lime concrete of the terrace was replaced with fresh concrete.

13. HAMMAM KHANA, BURHANPUR, DISTRICT EAST NIMAR.—The old Hammam lying buried, was exposed by removing the debris and garbage from the compartments.

14. JAIN TEMPLES 1 TO 5, BUDHI CHANDERI, DISTRICT GUNA.—Doors and windows were provided for the safety of the fixed sculptures.

15. BADA MADRASA, CHANDERI, DISTRICT GUNA.—A masonry enclosure wall was provided around the area of the monuments.

16. JAMI MASJID, CHANDERI, DISTRICT GUNA.—The courtyard was paved with flagstone flooring after removing the broken and sunken portions.

17. KOSHAK MAHAL, CHANDERI, DISTRICT GUNA.—The area was paved with flagstone flooring. The compound wall was raised.

18. NIZAM-UD-DIN'S TOMB, CHANDERI, DISTRICT GUNA.—The area was improved by providing paved flooring.

19. ROCK-CUT JAIN COLOSSI, GWALIOR, DISTRICT GWALIOR.—A retaining wall was built at Marimata Colossi to check erosion of the adjacent sloping area.

20. TELI-KA-MANDIR, GWALIOR, DISTRICT GWALIOR.—The area around the temple was provided with flag-stone flooring wherever necessary.

21. TOMB OF MOHAMMAD GHAUS, GWALIOR, DISTRICT GWALIOR.—Enclosure wall of about 2 m high in coarse rubble masonry is being constructed around the complex.

22. CHAUSATH YOGINI TEMPLE, BHERAGHAT, DISTRICT JABALPUR.—The outer periphery of the enclosure wall was provided with stone flooring. An enclosure wall was constructed at places to check the erosion of the hill. Stone benches were provided for the visitors.

23. GAURI SHANKAR TEMPLE, BHERAGHAT, DISTRICT JABALPUR.—A drain was provided for surface drainage of rain water.

24. SATKHANDA PALACE, MANDLA, DISTRICT MANDLA.—The palace-complex was improved by providing expanded metal-shutters, relaying lime concrete floor, plastering of domes and underpinning, etc.

25. BRAHMANICAL ROCK-CUT TEMPLES, DHAMNAR, DISTRICT MANDASOR.—The openings in the caves were provided with expanded metal shutters. The damaged walls of the caves were repaired with reinforced or plain concrete mortar.

26. YASODHARMAN'S PILLAR, SONDHNI, DISTRICT MANDASOR.—The open area around the pillar has been consolidated to make the environs presentable and to check soil erosion.

27. SAIVITE TEMPLE, BHOJPUR, DISTRICT RAISEN.—The bulged, missing or haphazardly inserted stones on the raised platform in front of the temple as well as the ashlar facing were dismantled and reset as per the original, after providing a 60-cm thick masonry wall throughout the length. The missing, worn-out or dislodged panels were replaced by new sandstone blocks simulating original colour and texture. Construction of a temporary shed for keeping stores, etc., is in progress.

28. AMEYA TEMPLE, FORT RAISEN, DISTRICT RAISEN.—The flooring of the courtyard was paved with stones laid in *morum.* The plinth of the temple was exposed by removing the accumulated debris around the structures.

29. APPROACHES, FORT RAISEN, DISTRICT RAISEN.—The uneven and pitted pathways were improved by providing a stone pavement from Bhopal gate to Ameya temple.

30. BARADARI, FORT RAISEN, DISTRICT RAISEN.—The area towards the west of Masjid was levelled by filling depressions and removing the undulations.

31. KATCHERI BUILDING, FORT RAISEN, DISTRICT RAISEN.—The original façade of the building was exposed by clearing the debris. The work of laying concrete in the rooms and courtyard is in progress.

32. BUDDHIST REMAINS, SANCHI, DISTRICT RAISEN.—The cement concrete road, leading to the *stupa,* was further strengthened. Stone-benches were provided around the monuments for visitors.

33. WALLS OF THE CITADEL, FORT KHIMLASA, DISTRICT SAGAR.—The top of the walls has been provided with stone paving to arrest percolation of water.

34. OLD FORT, GARHPAHRA, DISTRICT SAGAR.—The rooms of the palaces were provided with lime-concrete flooring.

35. FORT, RAHATGARH, DISTRICT SAGAR.—The collapsed portion of the fortification wall on the eastern side was restored. Besides, minor repairs, such as replacing broken *chhajja,* wooden beams, pulverized concrete, underpinning, supporting cracked arches were also undertaken in the palace-complex.

36. GADHI, SURWAYA, DISTRICT SHIVPURI.—The collapsed portion of the Gadhi wall was restored.

37. TEMPLE, SURWAYA, DISTRICT SHIVPURI.—The dislodged and sunken stone slab pavement was raised after replacing the broken and worn-out pieces.

38. UDAYESHWARA MAHADEVA TEMPLE, UDAIPUR, DISTRICT VIDISHA.—The sunken thick stone pavement of the courtyard was dismantled and reset on a bed of cement concrete. The broken and missing portions were replaced as per the original. Fixing of *jalies* in the Dharamshala is in progress.

39. CHAUBARA DERA 1 AND 2, UN, DISTRICT WEST NIMAR.—The area around the two temples was fenced and the undermined area was pitched with stone paving.

Maharashtra

40. TWO CAVES, PATUR, DISTRICT AKOLA.—The tops of the caves were provided with a layer of lime concrete over brick-bats to arrest the leakage of water.

41. GAIMUKH TEMPLE NO. 1, LONAR, DISTRICT BULDANA.—The missing floor was restored and the roof treated with cement plaster.

42. SITA-NAHAN TEMPLE, LONAR, DISTRICT BULDANA.—The temple was exposed to view by removing debris. The area was enclosed with a dry rubble compound wall. Repairs to the roof and floors have also been undertaken.

43. SQUARE KUND, LONAR, DISTRICT BULDANA.—The *kund* was desilted, cleaned and enclosed by a barbed-wire fencing.

Rajasthan

44. BUDDHIST CAVES, BINNAYAGA, DISTRICT JHALAWAR.—Expanded metal shutters were provided to the openings, and the undermined portion of the façade was repaired with reinforced cement concrete.

45. OLD TEMPLES, JHALRAPATAN, DISTRICT JHALAWAR.—Barbed-wire fencing was provided to mark the limits of the protected area.

46. BUDDHIST CAVES, KOLVI, DISTRICT JHALAWAR.—The openings were provided with expanded metal shutters against bat nuisance. The undermined portions were repaired with concrete mortar.

47. SIVA TEMPLE, GHARCHOMA, DISTRICT KOTA. —The damaged compound wall was repaired. Broken lintels were replaced and the area cleared of debris.

48. FORT WALL, DARA, DISTRICT KOTA. —The collapsed portions of the compound wall were rebuilt. Doors and shutters were also provided and the area fenced.

49. TEMPLE, KANSWA, DISTRICT KOTA. —Laying of Kotah stone-flooring to the rooms and verandahs is in progress. The compound wall was raised against scaling.

EASTERN CIRCLE

Assam

50. SRI SURYA PAHAR RUINS, DISTRICT GOALPARA.—The rock-cut figures over the hillock were exposed to view after clearance of jungle and vegetational growth.

51. KARENGGHAR PALACE, JAYSAGAR, DISTRICT SIBSAGAR.—Repairs to the palace walls are in progress.

52. SIBDOL, DISTRICT SIBSAGAR.—Repairs to the tilted gateway and the compound wall of the temple were carried out.

53. VISHNUDOL, DISTRICT SIBSAGAR.—Repairs to the apron and other parts of the temple were attended to.

54. DA-PARBATIA RUINS, DISTRICT TEZPUR.—Underpinning of the plinth of the ruins was carried out.

Orissa

55. PANCHAPANDAVA TEMPLE, GANESWARPUR, DISTRICT CUTTACK.—The scattered architectural pieces were collected and arranged in order. Besides, debris clearance and repairs to the roof of the main temple were also undertaken.

56. DURGA TEMPLE, RAMESWAR, DISTRICT CUTTACK.—The compound of the temple was levelled and dressed; barbed-wire fencing was provided around the temple.

57. ROCK INSCRIPTION OF ASOKA, JAUGADA, DISTRICT GANJAM.—The damaged shed was dismantled and debris were cleared off. The rock fissures above the inscriptions were filled in.

58. PASCHIMA SOMNATH TEMPLE, BOUDH, DISTRICT PHULBANI.—The dislodged ashlar masonry was reset and the cracks and voids in the temple grouted.

59. NILAMADHABA AND SIDHESWARA TEMPLE, GANDHARADI, DISTRICT PHULBANI.—The uneven and sunken portions of the pavement were reset and the top of the temple rendered watertight after grouting the cracks. The access to the temple was provided with an expanded metal door.

60. BAKESVARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The plinth of the temple was reset and the *vimana* grouted with cement.

61. LINGARAJA TEMPLE, BHUBANESWAR, DISTRICT PURI.—The worn-out portions of the *pidhas* of *bhoga-mandapa* were replaced to stop percolations of rain water inside the temple. Renewal of the wire netting of the ceiling of the *nat-mandir* is in progress, and the doors were provided with expanded metal.

62. LOOSE SCULPTURES IN BHUBANESWAR GROUP OF TEMPLES, BHUBANESWAR, DISTRICT PURI.—The sculptures were fixed with clamps on cement concrete platforms.

63. MEGHESWAR TEMPLE, BHUBANESWAR, DISTRICT PURI.—The work of resetting of stone pavement of the temple compound is in progress.

64. VARAHI TEMPLE, CHAURASI, DISTRICT PURI.—The dislodged roof of the *jagamohana* was dismantled, and the resetting work is in progress.

65. CAVES, UDAYAGIRI AND KHANDAGIRI, DISTRICT PURI.—The existing drainage system was improved by filling up sunken and eroded portions.

West Bengal

66. SARESWAR AND SAILESWAR TEMPLE, DIHAR, DISTRICT BANKURA.—The bulged-out portion of the retaining wall and the platform, including loose fillings, were dismantled and reconstructed, and the coping stones were reset as per the original alignment. Plinth was consolidated and the lime-terracing on the platform renewed. The slope adjoining the retaining wall on the western side was provided with dry pitching. Vertical cracks and joints on the walls of the temple were pointed.

67. JAIN BRICK TEMPLE, DWALA, DISTRICT BURDWAN.—The following items of repairs were undertaken at the temple: (i) clearance of thick vegetations and uprooting deep-rooted trees, thereby exposing the ornamentation work; (ii) renewing missing portions of the brick masonry and underpinning of bulged-out portions; (iii) providing tell-tale on the cracks to find out the movements, if any; and (iv) clearance of jungle all around the temple and removal of debris from the base of the temple leading to the discovery of a brick-built platform with projections and recesses on three sides excepting the front one.

68. LALJI TEMPLE, KALNA, DISTRICT BURDWAN.—Missing portions of ornamental pillars were reconditioned by using old bricks and preserving the rough outlines of ornamentations. Underpinning was done wherever necessary to the brick masonry. Deep-rooted trees and vegetation were removed from the top of the walls after dismantling the necessary portions which subsequently were reconstructed.

69. PANCHARATAN TEMPLE, KALNA, DISTRICT BURDWAN.—Underpinning was done to the decayed brick masonry of the temple, wherever necessary, maintaining the outlines of the original designs. The sloping roof of the temple was strengthened by replacing the salt-affected bricks which subsequently were plastered with lime. The entire area was cleared of thick vegetation and dressed to keep it neat and tidy.

70. PANDU-RAJAR-DHIBI, DISTRICT BURDWAN.—The work of providing barbed wire fencing with turnstile gates around the protected area is in progress.

71. MOSQUE OF SHUJAU'D-DIN, ROSHNIBAG, DISTRICT MURSHIDABAD.—Structural repairs to the mosque and the compound wall were undertaken using old bricks. Roots of trees were eradicated and consequential damages were mended.

72. JATAR-DEUL, JATA, DISTRICT 24 PARGANAS.—Deep-rooted trees on the *sikhara* were uprooted after dismantling the brick-work which subsequently were reconstructed. Collapsed portion of the southern side of the temple was restored. Besides, replacing of the salt-affected bricks, stitching of vertical cracks and providing lightning conductor were also undertaken.

MID-EASTERN CIRCLE

Bihar

73. ANCIENT STUPA, ANTICHAK, DISTRICT BHAGALPUR.—The work of water-tightening the tops of exposed structures and laying fresh concrete over the decayed terrace is in progress.

74. LAURIYA ARERAJ, DISTRICT CHAMPARAN.—The work of clearing and fencing with barbed wire around the newly-acquired land is in progress.

75. RUINED FORTRESS, NANDANGARH, DISTRICT CHAMPARAN.—The debris covering the excavated *stupa* was removed, and the *stupa* was water-tightened matching with the adjoining surface. The site was cleared of weeds and vegetation. A few mosaic benches were provided for the visitors.

76. BODHGAYA, DISTRICT GAYA.—Recently acquired land adjacent to the Museum has been demarcated and fenced with barbed wire to stop the encroachment.

77. SHAMSHER KHAN'S TOMB, SHAMSHERNAGAR, DISTRICT GAYA.—The area around the tomb has been partially fenced with barbed wire.

78. RAJA BALI-KA-GARH, DISTRICT MADHUBANI.—A part of the debris at the northern fort-wall was cleared to give a better view of the fortification. Weeds and vegetation have been removed from the site. A few mosaic benches have been provided for the visitors.

79. ASOKAN COLUMN, KOLHUA, DISTRICT MUZAFFARPUR.—The clearance work in front of the pillar exposed a brick *stupa,* 24.5 m in diameter and 7.5 m in height, and characterized by a circular dome rising in terrace. The size of the bricks used in the *stupa* is 31x30x7.5 cm.

80. RUKMINISTHAN, JAGDISHPUR, DISTRICT NALANDA.—The fencing of the area with barbed wire is in progress.

81. EXCAVATED REMAINS, NALANDA, DISTRICT NALANDA.—The walls of Monastery nos. 1, 6, 8 and 9 were water-tightened after being cleared of debris from the top. Besides, the rooms and verandah of the monasteries were lime-concreted. Special size bricks matching with the original were used in replacing worn-out bricks. The courtyard of the Museum compound was provided with railings. M. S. railing and mosaic benches were provided on both sides of the approaches outside the monastery complex. The work of fencing around the excavated remains with barbed wire is in progress.

The clearance work at Sarai mound, east of the excavated remains, brought to light some beautiful sculptures, such as Uma-Mahesha, Tara, Bodhisattva, Marichi and plastered brick-wall, 22 m in length, showing two structural phases. The wall was provided with niches in which the sculptures might have been fixed. The bottom of the niches were found to be decorated with *pallava* and *kalasa* designs. To the east of the brick wall, two stair-cases, one on each side of the sub-shrine, were exposed. A fourteen-line *prasasti*

engraved on a black stone and fixed by the side of a niche was exposed. The inscription mentions that this was inscribed by a certain civil architect Madhava, son of Vamana, on the instruction of Dargadutta who was a Sandhi-vigrahika. Besides, two sealings were also found.

82. ANCIENT MOUNDS, RAJGIR, DISTRICT NALANDA.—The weeds and vegetation were removed from all around the site. Newly-acquired area near Gorakshani has been fenced with barbed wire.

83. MUKHDUM SHAH'S TOMB, MANER, DISTRICT PATNA.—The decayed flooring of the verandah of the tomb was removed and lime-concrete flooring and pavement were provided wherever necessary.

84. GROVE KNOWN AS BULANDIGBAGH, PATNA, DISTRICT PATNA.—The archaeological area was cleared of weeds and vegetation, and fenced with barbed wire.

85. MIR ASHRAF'S MOSQUE, PATNA, DISTRICT PATNA.—Pointing of the open joints of the structure is in progress.

86. REMAINS OF WOODEN FOUNDATIONS AND MAURYAN WALLS LOCALLY KNOWN AS GOSHIKHAND, SANDALPUR, DISTRICT PATNA.—The archaeological area has been fenced with barbed wire.

87. SHER SHAH'S TOMB AND TANK, SASARAM, DISTRICT ROHTAS.—The tank was cleared of water cress and lotus plants. M. S. railings were provided on both sides of the approach road of the tank. Fencing of the newly-acquired area with barbed wire is in progress.

88. RAJA VISAL-KA-GARH, BASARH, DISTRICT VAISHALI.—The barbed-wire fencing was repaired and the weeds and vegetation were removed from the site.

89. EXCAVATED STUPA, CHAKARAMDAS, DISTRICT VAISHALI.—Barbed-wire fencing was provided around the acquired area on the south-western side.

Uttar Pradesh

90. BUDDHIST REMAINS, KUSHINAGAR, DISTRICT DEORIA.—Approach pathways were laid out on the back of the Nirvana temple. Some of the pathways were lime-concreted and provided with M. S. railings.

91. NIRVANA STUPA, KUSHINAGAR, DISTRICT DEORIA.—Exposing the foundation of the *stupa* is in progress.

92. CORNWALLIS TOMB, GHAZIPUR, DISTRICT GHAZIPUR.—After clearing the weeds and vegetation from the site, the archaeological area was demarcated and fenced with barbed wire.

93. OLD FORT, JAUNPUR, DISTRICT JAUNPUR.—Weeds and vegetation were removed. The approach road was repaired.

94. EXCAVATED REMAINS, SARNATH, DISTRICT VARANASI.—Watertightening of the wall top and underpinning of various parts of the structures are in progress. The platform around the main temple was concreted after raking out the damaged flooring. The weeds and vegetation were removed from all around the site.

95. LAT IN SANSKRIT UNIVERSITY, VARANASI, DISTRICT VARANASI.—The work of providing G. I. pipe railing fixed in sandstone pillar is in progress.

96. DHARARA MOSQUE, VARANASI, DISTRICT VARANASI.—The weeds and vegetation on the walls have been removed. The joints were filled up. The loose stones on the northern terrace parapet wall were refixed. The wide cracks on the parapet wall were filled up and recessed pointing was done wherever necessary. The decayed flooring of the ablution tank was removed and relaid with cement concrete. The damaged iron mesh of the mosque was replaced with a new one to check bird nuisance.

NORTH-WESTERN CIRCLE

Delhi

97. JAMI-MASJID, DELHI.—The decayed red sandstone slabs on the walls as well as on the soffit of the main arch, which are ornamented and inlaid with white marble, were replaced (pl. LIV). The cavities in the core were grouted. The work of repairing the central arch of the main prayer chamber is in progress.

98. KHIRKI-MASJID, DELHI.—The decayed and sunken floor was reset as per the original (pl. LV), and the joints were properly pointed. Structural repairs to the outer wall are in progress.

99. KOTLA FIROZ SHAH, DELHI.—Underpinning the hanging rubble masonry and pointing the joints with concreted mortar were done at the *baoli* in the monument.

100. MAKHDUM SAHIB'S MOSQUE, DELHI.—The debris in northern and western sides of the mosque was cleared. The stone masonry was pointed wherever necessary. Regular excavation was taken up for exposing the earlier structures.

101. PURANA QILA, DELHI.—The fallen portions of the western and southern fortification wall were restored and the joints of the masonry of the bastions (pl. LVI) and other parts were made watertight with concreted mortar consisting of lime and cement. Certain bulged portions were re-set. The wide and deep cracks were grouted with liquid mortar. The work of underpinning of the fallen patches of the rubble masonry with mortar matching with original in colour and texture is in progress.

102. QUDSIA MOSQUE, DELHI.—The fallen portions in three domes of the mosque (pl. LVII A) were reset with country bricks. The walls of the mosque were plastered and ornamental work was redone matching with the original. The decayed lime concrete of the roof of the mosque was relaid and joints of masonry were pointed. The fallen pillar was reconditioned and the open area was enclosed with a rubble wall.

103. QUTB MINAR, DELHI.—Pathways were provided with red *bajri,* lawns were provided with grill.

104. QUWWAT-UL-ISLAM MOSQUE, DELHI.—The ditch around the mosque, which skirts the moat, was provided with stone pitching.

105. DIWAN-I-AM, RED FORT, DELHI.—The replacing of the decayed uneven flooring with red sandstones (pl. LVIII) is in progress.

106. NAHR-I-BAHISHT, RED FORT, DELHI.—Coir matting has been spread over the floor to protect beautiful designs on the marble. The work of covering it with wooden boards is in progress.

107. NAUBAT KHANA, RED FORT, DELHI.—The cracked roof along with the pulverized concrete and the T. iron was dismantled. The work of laying a new roof, matching with the original, is in progress. The walls were replastered as per the original repeating the geometrical patterns and other motifs.

108. ROSHANARA BARADARI, DELHI.—During the course of the removal of the debris, some earlier structures, such as tank with a fountain system along with a drain for discharging surplus water, were exposed (pl. LVII B). Further excavation is in progress.

109. ADHAM KHAN'S TOMB, MEHRAULI, DELHI.—The walls of the verandah and ceiling were plastered matching with the original. The corridor around the tomb has been concreted. Repairs to the inner side of the dome are in progress. Walls of Lal Kot running along the monument was repaired.

110. ZAFAR-MAHAL, MEHRAULI, DELHI.—The fallen debris around the monument has been removed. Underpinning and pointing of the joints wherever necessary were done. The damaged wooden ceiling was restored. The work of relaying the decayed portions of the roof is in progress.

Haryana

111. SHEIKH CHILLI'S TOMB, THANESAR, DISTRICT KARNAL.—Debris was cleared up to the ground level on the eastern side of the dome along the main gate. A boundary wall was constructed around the monument. The work of laying the lawns on both sides of the main gate and repairs to the steps leading to the main gate are in progress. The eastern wall was underpinned wherever necessary, and the pointing was done to the joints in the masonry. Similar work was done to the *gumti* near the tomb.

Himachal Pradesh

112. BAIJNATH TEMPLE, BAIJNATH, DISTRICT KANGRA.—The cracks in the *sikhara* of the temple were grouted and the joints in the masonry were pointed. Angle iron doors were provided at the entrance.

113. BUDDHIST MONASTERIES, TABO, DISTRICT LAHUL AND SPITI.—The work of water-tightening the roof of Dwang (*gumpha*) was continued. Alkathene sheets were spread

below the mud plaster. The external walls were repaired and plastered with mud mortar. The ancient masonry was strengthened without changing its character. Sky-lights were also provided in the roof of the monastery. Cement concrete flooring was provided inside the monastery.

Rajasthan

114. RANTHAMBHORE FORT, DISTRICT SAWAI MADHOPUR.—The approach road from entrance gate of the fort to Ganesh Pol was repaired by removing the old stone-pitching and replacing with dressed stone-pitching.

115. BARI KATCHEHRI (HAMIR), RANTHAMBHORE FORT, DISTRICT SAWAI MADHOPUR.—The pointing of the joints in the sandstone masonry was done matching with the original. The arched opening of the Hamir's Court was fitted with an iron frame.

116. PUSHPA VATIKA, RANTHAMBHORE FORT, DISTRICT SAWAI MADHOPUR.—The approach road and boundary wall were repaired by removing old stones and replacing with the dressed stones matching with the original.

Uttar Pradesh

117. ASOKAN ROCK-EDICT, KALSI, DISTRICT DEHRA DUN.—A drain was constructed along the link road to the rock-edict to drain out the rain water. Pitching along the northern side of the drain was done in order to stop the erosion of the side walls. The work of levelling the link road and installation of electrical points is in progress.

SOUTHERN CIRCLE

Karnataka

118. FORT AND GATEWAYS, BANGALORE, DISTRICT BANGALORE.—The decayed plaster was removed and replastered.

119. TIPU SULTAN PALACE, BANGALORE, DISTRICT BANGALORE.—The eastern and northern sides were fenced. Debris was removed and the whole area kept tidy. The porches at the south-western and north-western corners are under repair.

120. VIDYASANKARA TEMPLE, SRINGERI, DISTRICT CHIKMAGALUR.—The work of constructing stepped embankment and retaining wall on the river side is in progress. Grouting and pointing of the *vimana* was carried out.

121. RAMALINGESVARA TEMPLE, AVANI, DISTRICT KOLAR.—The pillars in the south eastern corner were reset to their original places. The roof of the temple was water-tightened. The undulated floor was levelled. Ventilators and door were provided to the *mandapa-room.*

122. KESAVA TEMPLE, BELUR, DISTRICT HASSAN.—The fallen compound wall in the south-eastern corner was reconstructed. The terrace of the Rama shrine of the temple was

watertightened by replacing the old decayed mortar with fresh cement mortar. A new wire-mesh frame has been provided in place of old one at the *gopuram.* The shrines of Soumyanayaki and Ranganayaki and the kitchen were repaired.

123. KEDARESVARA TEMPLE, HALEBID, DISTRICT HASSAN.—The uneven surface along the southern and western sides of the compound wall was levelled. Slopes of the platform were paved with stones and the pathways gravelled.

124. PARSVANATHA BASTI, HALEBID, DISTRICT HASSAN.—The compound wall has been reconstructed in rubble stone and mud mortar. The flooring of the Santinatha Basti is also repaired.

125. LAKSHMINARASIMHA TEMPLE, NUGGEHALLI, DISTRICT HASSAN.—The terrace of the *yagasala* was water-tightened after replacing the broken slabs. Decayed plaster of the wall was removed and replastered. The uneven slabs in the *jagati* of the Narasimha temple were replaced. The accretionary parapet wall on the *navaranga* roof was removed to bring out the original architectural features to full view. The bulged out walls at *mahadvara* were repaired to fit with the original plumb line.

126. PANCHALINGESVARA TEMPLE, GOVINDANAHALLI, DISTRICT MANDYA.—The cracked beam in the *navaranga* was replaced and its roof water-tightened. The bulged out structure in the north-east was restored to the plumb lime.

127. NARAYANASWAMY TEMPLE, MELKOTE, DISTRICT MANDYA.—Further clearing and repairing of the stucco figures in the main shrine were continued. Repairs to the damaged flooring in the northern and western cloisters were carried out.

128. DARIYA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—The foundation of the palace was strengthened by laying concrete and consolidating the ground, and curb stones were provided along the concreted length. The wooden members were treated with oil preservatives.

129. GUMBAZ, SRIRANGAPATNA, DISTRICT MANDYA.—Deep cracks in the *nagarkhana* and *khankhana* were grouted and the decayed plaster in these places removed and replastered. The prayer hall was water-tightened.

130. JAMI-MASJID, SRIRANGAPATNA, DISTRICT MANDYA.—The mud and rubble wall in the rear side was replaced by a masonry wall. *Khankhana* was water-tightened and a chimney was provided as per the original. The cracked stone beam in the prayer hall was replaced by a R.C.C. beam.

131. RANGANATHA TEMPLE, SRIRANGAPATNA, DISTRICT MANDYA.—Water-tightening of the store room and *mandapa,* replastering of walls and pointing of the joints in the *mandapa* and levelling of flooring were carried out.

132. LAKSHMINARAYANA TEMPLE, HOSAHOLALU, DISTRICT MYSORE.—The terrace of the *jagati* was reset. The accretionary stone roof in the south-eastern corner of the temple

was dismantled. The old flush joints of the *vimana* were removed, and deep cracks and holes were plugged, grouted and neatly recess-pointed.

133. RAMESVARA TEMPLE, NARASAMANGALA, DISTRICT MYSORE.—The stucco figures were cleaned. The restoration work is in progress.

134. VAIDEESVARA TEMPLE, TALAKAD, DISTRICT MYSORE.—An additional masonry wall was erected to support the old one and to arrest sand encroachment. The roof of the *navaranga* was water-tightened.

135. AGHORESWARA TEMPLE, IKKERI, DISTRICT SHIMOGA.—Terrace of the temple with its attic, which had sustained serious damages in the past was rectified by (i) removing the unwanted weathered courses and resetting the ridge and channel roof slabs again in position, (ii) providing fresh channel stones wherever broken and (iii) replacing broken beams by casting them *in situ.* The *vimana* was further grouted with cement mortar in all its horizontal joints.

136. PRANESVARA TEMPLE, TALAGUNDA, DISTRICT SHIMOGA.—Water-tightening of the roof, erection of the brick compound wall and plastering of the walls of the temple were carried out. A railing was provided around the important early Kadamba pillar inscription, after repairing its base platform. The broken massive stone beam in the *mandapa* was replaced and flush slabs were laid.

Kerala

137. BEKAL FORT, PALLIKERE, DISTRICT CANNANORE.—The portions of the fallen wall of the watch tower were rebuilt and pointed. Iron gate to the main entrance and grill to the magazine were fixed.

138. MATTANCHERI PALACE, COCHIN, DISTRICT COCHIN.—Some portion of the roof was replaced by teak wood planks and the floor was cemented. The wooden ceiling of the coronation hall was varnished. The wooden door lintels of the old shed were also replaced.

139. ST. FRANCIS CHURCH, COCHIN, DISTRICT COCHIN.—The decayed plaster on the exterior of the wall was removed and replastered. New wooden shutters were provided. The steeple was reconstructed as per the original.

140. FORT, PALGHAT, DISTRICT PALGHAT.—The overgrown vegetation over the fort walls and moat was cleared and tree-killer acid applied to avert further growth..

141. ANJAMAN, CHERUMANAGAD, KANDANASERRY AND KODDAKALLUPARAMBU, DISTRICT TRICHUR.—Approach roads were laid at the above places.

142. SIVA TEMPLE, PERUVANAM, DISTRICT TRICHUR.—The decayed tiled roof of the main shrine along with the reepers were replaced by new ones, and ridged bands were provided at the corners and at regular intervals in combination mortar.

Pondicherry

143. VADUGIRISVARA TEMPLE, TIRUVANDARKOIL, PONDICHERRY.—Fencing of the protected area is in progress. The undulated floor of the courtyard was levelled and the walls of the sub-shrine were plastered.

Tamil Nadu

144. KAILASANATHA TEMPLE, KANGHIPURAM, DISTRICT CHINGLEPUT.—The broken pillars in the façade of the temple were re-conditioned by toned and suitably carved concrete pillars, and the area was cleared.

145. PARSVANATHESVARA TEMPLE, KANGHIPURAM, DISTRICT CHINGLEPUT.—Heavy vegetation around the temple was cleared and the area fenced.

146. VAIKUNTHANATHA PERUMAL TEMPLE, UTTIRAMERUR, DISTRICT CHINGLEPUT.—Accretionary walls of the shops after acquisition were removed and important inscription exposed. Protected area was fenced and provided with a gate.

147. JAIN BEDS AND INSCRIPTION, KILAYUR, DISTRICT MADURAI.—Removal of the earth exposed the hidden inscriptions. The boundary of the protected area was demarcated.

148. CAVES, MAMANDUR, DISTRICT NORTH ARCOT.—Cave nos. 3 and 4 were fenced and a gate was provided.

149. FORT, VELLORE, DISTRICT NORTH ARCOT.—Repairs and pointing to the Fort walls and laying of pathways were undertaken. Vegetation on the rampart was cleared. The bulged out portions of the wall in the northern and southern sides were reset. Accretions to the dalans of the Jalakantesvara temple were removed.

150. MOOVAR-KOIL, KODUMBALUR, DISTRICT PUDUKKOTTAI.—The damaged wall of the step-well and its parapet wall were repaired.

151. SIKHAGIRISVARA TEMPLE, KUDUMIAMALAI, DISTRICT PUDUKKOTTAI.---The broken ceiling slabs in the hundred pillared *mandapa* were replaced by new ones. A sun shade shelter was provided for the musical inscriptions by the side of the *mandapa* of the cave temple, matching with the environment.

152. MUCHUKUNDESVARA TEMPLE, PUDUKKOTTAI, DISTRICT PUDUKKOTTAI.---- The northern *prakara* wall was rebuilt.

153. ROCK-CUT JAIN TEMPLE, SITTANNAVASAL, DISTRICT PUDUKKOTTAI.—The wooden grill was replaced with a cast iron one to protect the cave from the afternoon sun in the manner that it does not hinder the view of the standing pillars on the facade.

154. SIVA TEMPLE, TIRUKKATTALAI, DISTRICT PUDUKKOTTAI.—An apron around the temple was constructed to prevent seepage of water.

155. NARASIMHASWAMY TEMPLE, NAMAKKAL, DISTRICT SALEM.—The roof of the kitchen was repaired.

156. MOSQUE, GINGEE, DISTRICT SOUTH ARCOT.—The roof was water-tightened; the decayed plaster was removed and replastered.

157. RAJAGIRI FORT, GINGEE, DISTRICT SOUTH ARCOT.—The decayed wood of the draw bridge was replaced.

158. TALAGIRISVARASWAMY TEMPLE, PANAMALAI, DISTRICT SOUTH ARCOT.—The dead plaster on the eastern wall was removed and replastered. Terrace was water-tightened by laying two courses of flat tiles and plastering.

159. AIRAVATESVARA TEMPLE, DARASURAM, DISTRICT THANJAVUR.—Water-tightening of the terraces of the *kalyana-mandapa* and the *mandapa* along the northern side was carried out.

160. BRIHADESVARA TEMPLE, GANGAIKONDACHOLAPURAM, DISTRICT THANJAVUR.—Grilled enclosure was provided around Thyagaraja shrine in place of the accretionary masonry walls, and the bronzes were kept well-fixed on the platform.

161. BRIHADESVARA TEMPLE, THANJAVUR, DISTRICT THANJAVUR.—The *vimana* was carefully water-tightened, dead plaster strenthened and all crevices grouted. A protective coat of toned plaster to the *vimana* was provided. The uneven stone flooring of the Nataraja *mandapa* and debris were removed and dressed stone-flooring was relaid. The pillars were cleaned of white wash and the walls were plastered. The terrace of the kitchen was water-tightened. The uneven flooring of the temple was re-conditioned by laying bricks, and the flooring of the *prakara* was levelled by resetting the uneven stones. The approach road to the temple was repaired by filling pot-holes and levelling. New tiles were put over the *mandapa* of Kuruvurar sub-shrine. Repairs were done to Varahi sub-shrine by erecting an ashlar masonry in place of a cracked brick wall. Wooden railings were provided to the western and northern cloister *mandapa.* In the temple granary, accretionary walls were removed and walls were erected in between pillars. A paved pathway was provided around the temple after removing the worn out bricks. The ugly walls in the southern and western cloister of the *mandapas* were dismantled and new walls were provided. Repairs to the broken pillars along the cloister is in progress.

The walls and the terrace of the *ardha-mandapa* were water-tightened after removing the dead lime-plaster.

162. ERUMBESVARA TEMPLE, TIRUVERUMBUR, DISTRICT TIRUCHCHIRAPALLI.—The decayed brick courses on the terrace were removed and the roof was packed with brick jelly in lime mortar to prevent leakage. The work is in progress.

163. VALISVARA TEMPLE, THIRUVALISVARAM, DISTRICT TIRUNELVELI.—Accretions on the terrace were removed to expose the hidden sculptures. The work of construction of the porch is in progress.

SOUTH-EASTERN CIRCLE

Andhra Pradesh

164. SIDDHESVARASWAMY TEMPLE, HEMAVATHY, DISTRICT ANANTAPUR.—The ground level all over the area was levelled and the earthen mound at the north-western corner of the shrine was sectioned. The frontage was given a face-lift by laying pathways.

165. VEERABHADRASWAMY TEMPLE, LEPAKSHI, DISTRICT ANANTAPUR.—The main entrance was provided with temple-type wooden doors with brass-knobs. The sunken flooring slabs of the pillared *mandapas* and in front of the shrines were reset and pointed. The lime and red ochre coats over the ornate sculptured members were cleaned.

166. PARASURAMASWAMY TEMPLE, GUDIMALLAM, DISTRICT CHITTOOR.—The brick-built compound wall was restored and the area around the monument was levelled and sloped for draining out rain water. The roof of the main shrine was rendered watertight after removing decayed plaster and concrete and by relaying a fresh concrete layer. The loose and sunken flooring slabs inside the temple were removed and reset in position and the joints were recess-pointed. A temple-type wooden door with brass-knobs was provided at the main entrance. The three-barred rail with uprights having floral designs, all round the *linga,* in the *garbha-griha,* exposed earlier in the excavation, was preserved for public view by suitably lowering the flooring, after mending the railing in cement mortar matching with the original.

The northern wall of the Surya shrine, which was out of plumb due to vertical cracks, was dismantled and rebuilt as per the original. New wooden joists were also provided. Flooring slabs of the Karttikeya, Devi and Surya shrines were removed and duly reset. The entrances of these shrines were provided with temple-type teak wood doors.

167. BUDDHIST REMAINS, AMARAVATI, DISTRICT GUNTUR.—A new sculpture-shed to house the reserve collection was constructed within the precincts of the Museum. The low lying area was filled with earth. Near the *maha-chaitya,* towards southern and eastern extremes, the levelling of the area was undertaken. Proper drainage was provided near the *stupa.*

168. KAPOTESVARASWAMY TEMPLE, CHEZERLA, DISTRICT GUNTUR.—The *adhishthana* in three tiers with bricks (size: 42x21 x7.5 cm) chamfered externally was exposed while clearing 1.5-m thick debris accumulated around the monument. Three floor levels, two of them paved with Cuddapah slabs, suggesting structural phases, were noticed. The huge breach at the north-western side of the outer *prakara* was restored to position.

169. HILL TOP, NAGARJUNAKONDA, DISTRICT GUNTUR.—Enclosure walls were raised and a door shutter was provided to the shed housing the inscribed members in the second enclosure. Approach pathways were freshly laid to the transplanted monuments after removing the shrubs, etc.

170. FORT, GOLCONDA, DISTRICT HYDERABAD.—The flooring of the Rani Mahal was relaid with the available old stones as per the original. The flight of steps known as *Zanana* steps, was repaired by resetting in position the dislodged cut stones. The original

parapet was restored. Open joints in the walls of the Ramdas Bandhikhana were pointed with combination mortar after filling of the voids. Cracks on the roof were grouted with cement and the main steps were repaired by pointing with combination mortar.

The work of restoring the defunct water supply from the Durg tank has now been taken up with a view to relaying the different terraces of the garden. The electrification of the Golconda fort is also in progress.

171. CHARMINAR, HYDERABAD, DISTRICT HYDERABAD.—The fine stucco-work on the parapets, minarets and walls and the trellis work in the panels of the parapet of the mosque, located in the second floor, are being restored. The damaged and pitted interior of the walls of the spiral staircase, from the clock-area to the top of the *minars,* were repaired with patch-plaster. A three-barred aluminium rail, having an entrance at the south-eastern corner, was provided along the platform in front of the mosque. The iron fencing around the Charminar, taken up earlier, was completed in all respects. Electrification within the monument is also nearing completion.

172. BUDDHIST REMAINS, JAGGAYYAPET, DISTRICT KRISHNA.—Barbed-wire fencing with gate has been provided to the protected area.

173. CAVES, VIJAYAWADA, DISTRICT KRISHNA.—The work of removing the debris, accumulated as a sequel to the laying of the ghat road over the caves, is in progress. The height of the compound wall was raised and gaps closed to prevent trespass. Barbed wire fencing was provided to the Cave nos. 3 and 4 at Mogalrajapuram group to check the misuse of the caves.

174. SRI UMAMAHESVARA TEMPLE, YAGANTI, DISTRICT KURNOOL.—The fallen part of the *mandapa* was reconstructed with available stones. Various sculptured reliefs were cleaned of moss and lichen. A retaining wall was built in two stages to conserve the flight of steps over a rising gradient in front of the temple.

175. KRISHNA TEMPLE, UDAYAGIRI, DISTRICT NELLORE.—A temple-type wooden door was provided to the entrance of the sanctum.

176. RANGANAYAKULA TEMPLE, UDAYAGIRI, DISTRICT NELLORE.—Underpinning and recess pointing were done to the southern *gopura* of the temple. The accumulated earth in the cloister all round the temple was removed to expose the moulded plinths. The fallen parts of the southern and eastern wings of the compound wall were reconstructed to the original height.

177. GROUP OF TEMPLES, MUKHALINGAM, DISTRICT SRIKAKULAM.—The thick coat of lime plaster over the walls of the Madhukesvara temple-complex was cleaned exposing a highly ornate surface (pl. LIX) and inscriptions. Joints in the walls were grouted with liquid cement mortar and recess pointed matching with the original. The accretionary platform, connecting the entrance of the *mukha-mandapa* with *gopura* entrance, was removed and a large *chandra-sila* (moon-stone) at the door step to the *maha-mandapa* was exposed. The removal of plaster on the walls of the smaller shrines is in progress. All the encroachments in the Bhimesvara temple-area were cleared and a barbed-wire fencing was provided.

Maharashtra

178. FORT, BALLARPUR, DISTRICT CHANDA.—The fallen fortification wall on the northern side was rebuilt with old stones after consolidating the core to its original height. Clearance and exposition of structures in Rani Mahal was done. Eroded and under-cut portions on the river side were strengthened by raising the retaining wall while the gaps in the masonry were properly closed. Patch-plastering and laying of flooring within were also taken up.

179. FORT, CHANDA, DISTRICT CHANDA.—The fallen south-western part of the fort-wall was rebuilt to its original height. The blocked portion of the drain near the Achalesvara temple was cleared and widened. The sunken gallery below the battlement on the inside was dismantled and rebuilt as per the original to a length of 11 m.

180. MAHADEO TEMPLE, RAMDIGI, DISTRICT CHANDA.—Clearance of the debris behind the temple exposed a brick structure, 0.75 m in width, having a moulded outer facing. A brick-paved flooring was also exposed within the structure. The associated finds such as grooved tiles, large sized bricks (45x22x7 cm), red ware pottery suggest that the structure may belong to the time of Vakatakas.

The roof slabs over the *mukha-mandapa* and *kakshasana* stones were reset and pointed. The *sikhara* was water-tightened.

WESTERN CIRCLE

Daman and Diu

181. CHURCH OF HOLY JESUS, DAMAN.—The missing and broken Mangalore tiles were replaced by new ones. The work of replacing decayed wood work is in progress.

182. FORT, DIU.—The wooden members of the entrance gate were painted after necessary clearance and repairs. Canon balls and loose architectural members of the fort were collected from different parts of the fort and stored properly. The work of clearing the vegetation growth on the fort is in progress.

183. JAMI-MASJID, DIU.—Decayed plaster was removed and restored with lime-cement combination.

184. MUSEUM BUILDING, DIU.—Top layers of uncoursed rubble masonry of the structure, locally known as Museum of Archaeology, situated inside the fort, were removed and reset with cement mortar. A platform was provided to keep the sculptures and inscriptions including epitaphs. Jungle growth around the monument was cleared.

185. ST. PAUL'S CHURCH, DIU.—The decayed and uneven plaster was removed from the walls and replastered with lime-cement combination. The old oil paint was scraped off and repainted with distemper.

Gujarat

186. MUHAFIZ KHAN'S MOSQUE, AHMADABAD, DISTRICT AHMADABAD.—The damaged *kakshasana* stones of the mosque were replaced by newly-carved and dressed ones and

an ochre wash was given to match with the original. The damaged cusped *mihrabs* were moulded in plaster, as per the original. Beautifully-carved broken pulpit (*mimbar*) of stone was replaced with a new one carved with original designs. The damaged stone merlon decorations (*kanguras*) were restored as per the original. The damaged perforated screens of the mosque were also restored.

187. TEEN DARWAZA (TRIPOLIA), AHMADABAD, DISTRICT AHMADABAD.—The dead wooden beams and planks were removed from the terrace and the new ones were provided. The dead concrete on the terrace was removed and relaid with cement concrete. Preservative was applied to the wood works. The repair-work of the roof in lime-concrete is in progress.

188. TOMB AND MOSQUE OF SAYYID 'UTHMAN (DARGAH SHAMA-I-BURHANI), AHMADABAD, DISTRICT AHMADABAD.—The damaged stone pillars, lintels, beams, eaves, merlons (*kanguras*) of the tomb were restored with original designs. Similarly, the eaves and merlons of the façade and the minarets of the mosque were restored.

189. HARAPPAN SITE, LOTHAL, DISTRICT AHMADABAD.—Part of the silt from the dockyard was removed. The excavated drains were also repaired wherever necessary for draining out the rain water. The water from the dockyard was pumped out. The mud-embankment was raised on all sides to prevent the entry of the rain water into the dock yard. Plantation of certain categories of trees was carried out to protect the dockyard from sands-torms.

190. DWARKADHISH TEMPLE-COMPLEX, DWARKA, DISTRICT JAMNAGAR.—The five-storeyed *vimana* of the southern porch of the principal shrine, which had developed cracks and whose pillars, pilasters, capitals and lintels were badly decayed and broken, was successfully dismantled after properly documenting and numbering the architectural members. The resetting of the ground and first floors by replacing broken pillars and lintels with newly carved and dressed stones in cement mortar, as per the original, has been completed, and further work is in progress.

Similar work was taken up in the plinth portion of the Trivikramji temple. Replacement of weathered capitals and pillars by newly-dressed stones was also done at the monument.

191. GROUP OF TEMPLES, VASAI, DISTRICT JAMNAGAR.—The boundary wall of the Kankeshwar Mahadeva temple was provided with dressed stone masonry in cement mortar and the debris around it was cleared. The *vav* (well) was desilted.

The Junagadhi Mata temple was cleared of its debris and jungle around it.

192. GALTESHWAR MAHADEV TEMPLE, SARNAL, DISTRICT KHEDA.—The raised platform of the temple, which was damaged by the flood waters, was rendered water tight by providing stone pavement on cushion of cement concrete.

193. JASMALNATHJI TEMPLE, ASODA, DISTRICT MAHESANA.—The damaged and decayed pavement was re-conditioned by providing new stones over a cushion of cement concrete.

194. SUN TEMPLE, MODHERA, DISTRICT MAHESANA.—The reconstruction of the missing corbelled dome on the *sabha-mandapa* was completed as per the original pattern. Similar work at *nritya-mandapa* is nearing completion. The cracked, decayed and damaged stone lintels, beams and pillars were replaced by new ones matching with the original. The work is in progress.

The displaced ashlar stepping stones of the Surya-kund were reset in position. Desilting of the *kund* is in progress.

195. RANI-KI-VAV, PATAN, DISTRICT MAHESANA.—The silt and the fallen members of the well were removed from inside. The damaged and missing ashlar masonry was replaced matching with the original.

196. SURYA TEMPLE, PILAUDRA, DISTRICT MAHESANA.—The debris and vegetational growth around the *torana* and the *kund* were cleared. The stone flooring was reset over a cushion of cement concrete.

197. ARJUNBARI GATE, VADNAGAR, DISTRICT MAHESANA.—The entire façade including the bulged out ashlar masonry were dismantled and were reset in lime mortar as per the original. The dead lime concrete was removed and a fresh one was provided. The open roof was vaulted with brick and thick lime-mortar.

198. BAWA MAN'S MOSQUE, CHAMPANER, DISTRICT PANCH MAHALS.—The debris of the principal dome and side walls of the mosque and thick jungle growth were cleared and the structure exposed to view. The broken and bulged out portions of the walls were repaired. The slone floorings and the *mihrabs* were reset, following the original pattern. The work is in progress.

199. CITADEL WALL, CHAMPANER, DISTRICT PANCH MAHALS.—The heaps of debris and vegetation were removed from the northern citadel wall up to a length of 91 m. The rubble masonry was rendered watertight and ashlars were reset in position. The stone stair-case of the same wall was repaired with ashlars after resetting the arch supporting the steps. Similar work was taken up at the Gate no. 1.

The repairs to the unique remains of the *minijenigues* (stone platforms for mechanical devices to throw huge stone boulders over the attacking enemy) were taken up. The work of resetting the dislodged ashlar masonry of the *minijenigues* is in progress.

200. LAKULESHWAR MAHADEVA TEMPLE AT PAVAGARH HILL, CHAMPANER, DISTRICT PANCH MAHALS.—The loose sculptures, scattered around were collected and fixed in their original position in the outer walls of the *garbha-griha.* The work of refixing the carved stones of the *sikhara,* which were collected from the adjacent tank, is in progress. The *kund* on the hill was desilted.

201. MANDVI GATE, CHAMPANER, DISTRICT PANCH MAHALS.—The badly damaged flooring was re-conditioned by providing *kankar* flooring over a bed of brick-bats with cement finishing. Missing ashlar masonry was restored. The northern screen of the eastern gate was raised to the height of 2.5 m for security reasons.

202. SHAHAR-KI-MASJID, CHAMPANER, DISTRICT PANCH MAHALS.—The ashlar masonry which was worn out and out of plumb was dismantled for further conservation.

203. SOUTH (HALOL) BHADRA GATE, CHAMPANER, DISTRICT PANCH MAHALS.—The fallen ashlar arch of the main gate was reconstructed matching with the original. The tilted portion of ashlar and brick masonry was reset and water-tightened. The dilapidated stair-case of ashlars was repaired and rendered watertight. The damaged and partly missing outer compound wall of ashlars of the eastern (Godhra) gate was repaired with the original material.

Rajasthan

204. NILKANTHA MAHADEVA TEMPLE, ARTHUNA, DISTRICT BANSWARA.—The sunken and uneven pavement was repaired and some missing stones were provided over a cushion of cement concrete.

205. MAHAKALA TEMPLE, BIJOLIAN, DISTRICT BHILWARA.—The damaged pavement was removed and replaced with new slabs over a cushion of cement concrete.

206. RATANSINGH TANK, FORT, CHITTAURGARH, DISTRICT CHITTAURGARH.—Random rubble masonry in the foundation and plinth was repaired with cement mortar.

207. GROUP OF TEMPLES, MENAL, DISTRICT CHITTAURGARH.—The dry rubble masonry in between the two ashlar facing stones of the compound wall was reset as per the original.

208. FORT, MANDORE, DISTRICT JODHPUR.—The damaged compound wall was repaired with ashlar masonry in lime mortar. Base filling and paving of the attached court of the compound was taken up including spreading, dressing and levelling with rubble pitching and dressed stones.

209. MONUMENTS IN FORT, KUMBHALGARH, DISTRICT UDAIPUR.—The uneven pavement of the Golerao temple no. 2 was repaired. Fallen and bulged out portions of the ashlar masonry walls of the Bavan Devri temple were reset in lime-cement mortar, providing new dressed stones wherever necessary. The missing stone flooring on the western side was re-conditioned. The debris and vegetational growth around the Jain temple group were cleared. Work of repairing random and dry rubble masonry, providing steps to the shrines, grouting of the cracks in the domes, was attended to.

210. SAS AND BAHU TEMPLES, NAGDA, DISTRICT UDAIPUR.—The missing stone pavement in Rajnagar white marble was redone as per the original and set in lime mortar.

MONUMENTS MAINTAINED BY THE STATES

ANDHRA PRADESH

1. QUTUB SHAHI MONUMENTS, GOLCONDA, DISTIRCT HYDERABAD.—Ancient well called *dood bowli* was deepened and repaired. The fallen *kalasas* at Sultan Mohd. Quli Qutub Shah Tomb was reconstructed. The Mosque near Taramati Lake was repaired.

2. FORT, KONDAPALLI, DISTRICT KRISHNA.—The work of conservation and jungle clearance is in progress.

ASSAM

3. MAGAZINE HOUSE RUINS, PANBARI, DISTRICT GOALPARA.—The undulated area around this brick-structure complex was levelled and the remains were enclosed with an iron fence.

4. BILLESWAR TEMPLE, BELSAR, DISTRICT KAMRUP.—The extrados of the *sikhara* were repaired by clearing vegetation, terracing and plastering.

5. KACHOMARI PATHAR RUINS, KACHOMARI PATHAR, DISTRICT KAMRUP.—The site was enclosed with iron fencing and the sculptures were refixed in their proper places.

6. SIDDHESWAR TEMPLE, SOALKUCHI, DISTRICT KAMRUP.—The vegetation on the dome with the roots penetrating into the walls and foundation was eradicated. The dilapidated main archway to the temple at the junction of the *mandapa* and the cella was reconstructed as per the original.

7. JAGADHATRI DOL, BARPATRA, DISTRICT SIBSAGAR.—The deep rooted trees and vegetation on and around the monument were uprooted and the cracks in the monument were properly grouted.

GUJARAT

The work of cleaning and conservation was carried out at the following monuments:

8. SHIV MANDIR, KASARA, DISTRICT BANAS KANTHA.

9. CAVES AT KADIYA DUNGAR, JHANJHPORE, DISTIRCT BHARUCH.

10. SHIV MANDIR, KERA, DISTRICT KUTCH.

11. SHAKTI KUND, AKHAI, DISTRICT MAHESANA.

12. RAMJI MANDIR, PALODAR, DISTRICT MAHESANA.

13. GEBALSHA'S STEP-WELL, CHAMPANER, PANCH MAHALS.

14. GROUP OF TEMPLES, GANCHHALI, DISTRICT SABAR KANTHA.

15. SHIV TEMPLE WITH KUND, ABHAPUR, DISTRICT SABAR KANTHA.

16. JAIN TEMPLE, no. 3, ABHAPUR, DISTRICT SABAR KANTHA.

17. LAKHENA JAIN TEMPLE (GROUP), ABHAPUR, DISTRICT SABAR KANTHA.

18. SHIV PANCHAYATAN TEMPLE (GROUP), ATARSUMBA, DISTRICT SABAR KANTHA.

19. TEN TALAV, TEN, DISTRICT VADODARA.

MAHARASHTRA

20. SONERI MAHAL, AURANGABAD, DISTRICT AURANGABAD.—The repairs to the rear portion of the monument were carried out.

21. MAHADEVA TEMPLE, SAOKHEDA, DISTRICT AURANGABAD.—The temple was properly documented and numbered and dismantled. The shifting of the members is under progress for transplanting the monument, as it would be submerged under the reservoir of the Jayakawadi irrigation project.

22. MAHADEVA TEMPLE, SHEVTA, DISTRICT AURANGABAD.—The temple has been dismantled and shifted to Soneri Mahal at Aurangabad for transplanting as it would be submerged under water of the reservoir of the Jayakawadi irrigation project.

23. CAVES, PANHALE KAJI, DISTRICT RATNAGIRI.—The area around the caves was levelled and an approach road was laid.

ORISSA

24. KOSELESWAR TEMPLE, BAIDYANATH, DISTRICT BALANGIR.—The *jagamohana* portion of the temple was repaired.

25. TRILOCHANESWAR TEMPLE, KUNDESWAR, DISTRICT CUTTACK.—The *jagamohana* of the temple was dismantled. The reconstruction, as per the original, is in progress.

26. ANGESWARA TEMPLE, PITAPARA, DISTRICT CUTTACK.—The temple was conserved.

27. MANIKESWAR TEMPLE, SUKLESWAR, DISTRICT CUTTACK.—The debris around the temple was cleared, and some sculptures such as Narasimha, Vishnu, *Siva-tandava* and inscriptional slab with Devanagari script were unearthed.

28. FORT, GANJAM, DISTRICT GANJAM.—The western gate and two rooms adjoining it were repaired. The façade of the eastern gate was also repaired.

29. SIDDHA BAKULA MATHA, BALISAHI, DISTRICT PURI.—The enclosure of the Siddha-bakula tree was renovated.

30. LAXMINARAYANA TEMPLE, CHAURASI, DISTRICT PURI.—The renovation work of the temple is in progress.

VIII. EXPEDITION OUTSIDE INDIA

PRESERVATION OF BUDDHIST SHRINES AT BAMIYAN, AFGHANISTAN

STRUCTURAL PRESERVATION.—During the period under review, the preservation work was continued at the shrine of the 'Small Buddha'.

It was apparent from the extant remains of the paintings on the ceiling that at least one metre length of the outer edge of the ceiling of the shrine had been eroded by the snowwater flow. This damage, in turn, had allowed snow-water to flow down the painted surface. In order to prevent further damage and to strengthen the disintegrated rock of the soffit of the vaulted roof of the shrine, the missing portion was restored by providing a ledge in cement concrete, reinforced with M.S. rods, duly anchored deep into the rock mass. A drip-course was also provided at the outer edge of the ledge.

As an additional protective measure against tremors, the belts of flat iron bars were provided around the separated chunk of rock on the western side. The ends of the bars were driven deep into the solid rock of the rear wall for anchorage, and the bars were fixed concealed in chases cut into the rock and covered with concrete. After securing the fractured portion in its original position, the question naturally arose whether the obtrusive buttress wall (pl. LX) should be removed totally or partially. Partial removal and trimming and treating the unsightly wall in an aesthetic manner to merge with the rock, was decided upon for the reason that irrespective of the efficacy of the reinforcements provided, balance established by the buttress wall as a prop should not be disturbed. With this end in view, the upper portion of the wall was trimmed to the extent considered permissible so that the extant protion would serve as a blanket to the reinforcement provided inside the wall. It was observed that the buttress wall was built up over a damaged shrine, the top of which had weathered because of exposure for a long time. The cavity of the shrine was filled up with rubble masonry and from it a R.C.C. column was raised up to the bottom of the severed block and then made to lodge into the parent rock. To ensure stability of the wall and to prevent any dislocation of the material below the foundation, a toe wall in rubble masonry was constructed. The brick-faced masonry wall was trimmed and the entire surface covered with cement concrete plaster in a manner so as to simulate the undulated rock surface. The eastern face of the treated buttress wall has been kept well recessed and a pronounced edge-line demarcates the extant portion of the original rock.

The original entrance to the stair-case on the west which had been blocked with rubble masonry was restored facilitating the visitors to use it, as intended originally.

The image of the small Buddha had suffered considerable damages. The right leg had developed transverse crack which had almost separated the front portion. The feet were found to have been damaged. The image was originally plastered with layers of stucco which got damaged at places due to actions of snow-drifts. In the course of preservation work, no part of the body was renewed. The feet have been consolidated and finished with an irregular surface without any effort to reproduce the toe with fingers. The crack above the ankle was repaired by fixing bolts and then mending the damages in cement concrete to match the rock surface. The broken edges of the garment was filleted and the holes and hollows found on the surface filled up to arrest any further damage. The exposed

rock surface of the shoulders were treated with a layer of plaster and the folds of the garment were repaired with a rough surface.

CHEMICAL PRESERVATION.—The chemical treatment to the wall paintings in Caves 2 and 15 was continued.

Paintings on the walls and ceilings (pl. LXI) of Cave 2 had suffered considerable damage owing to both physical and chemical weathering. The painted stucco had detached at a number of places from the ground and was tending to peel off. Deposits of dust, dirt, soot and other tarry matter had obliterated the paintings. Besides, the paintings in Cave 15 (pl. LXII) were covered with a coat of mud-plaster. The preservation work, executed to the murals, included elaborate physical and chemical cleaning for the removal of all kinds of accretions, fixing and consolidation of loose films and plaster and application of a suitable preservative-coat. The removal of soot and other tarry matter and mud-plaster could be done satisfactorily due to careful and diligent cleaning work. The broken edges of stucco were filleted with Plaster of Paris or *gutch* tinted with a lighter colour than that of the paintings, so that the portions treated could be distinguishable. Even in filling up the cavities in the painted surface, the new surface was kept recessed. As a result of chemical cleaning, many interesting paintings which were under a layer of soot and mud-plaster have been exposed.

Extensive work of filleting the broken edges of the painted stucco was executed in Cave 8 and also on the eastern wall of the main niche.

Structural as well as chemical preservation of the small Buddha shrine was completed in all respects.

IX. ARCHAEOLOGICAL CHEMISTRY

TREATMENT OF MONUMENTS AND PAINTINGS[1]

BIHAR

1. MUKHDUM SHAH'S TOMB, MANER, DISTRICT PATNA.—The fine carvings in the verandahs of the tomb, which were disfigured with salt efflorescences, water-marks and usual vegetationl accretion of moss, were brought under treatment.

DELHI

2. GOLDEN PAINTINGS ON THE CEILING OF DIWAN-I-KHAS, RED FORT, DELHI.—Chemical treatment of these paintings, executed on a kind of cotton fabric was continued in the Central Hall. The flaking fabric was fixed back and insect-nests on the paintings were removed.

3. MARBLE WORK, DIWAN-I-KHAS, RED FORT, DELHI.—Carved marble pillars and pilasters, some of them bearing inlay decoration, were cleaned with lissapol and organic solvents. Stains were reduced as far as possible with hydrogenperoxide.

GUJARAT

4. SHIV PANCHAYATAN TEMPLE, ATARSUMBA, DISTRICT SABAR KANTHA.—The monument was cleaned of moss, lichen, algae, etc., and treated with fungicidal chemicals. The treated surfaces were finally preserved with a coat of resinous solution.

HIMACHAL PRADESH

5. DUWANG GUMPHA, TABO MONASTERY, SPITI, DISTRICT LAHUL AND SPITI.—ABOUT 75 sq. m of the wall paintings were subjected to elaborate chemical treatment (pl. LXIII) and extensive documentation. Several painted panels, only partially visible under a thick coat of dust and accretion, were cleaned and preserved. Methyl alcohol, benzene, cellosolve, acetone and other solvents were used in the work.

KARNATAKA

6. DARIA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—The accretions and brown stripes on the paintings on the walls were removed by using chemicals like diacetone alcohol, cellosolve, morpholine and butyl lactate either individually or in combination according to the nature of the accretions. Consolidation of loose paint film was carried, out with thick solutions of polyvinyl acetate in toluene (10 to 12%). The treated areas, measuring 84 sq. m, were finally preserved with 3% solution of polyvinyl acetate in toluene.

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[1] Information from: 4, Director of Archaeology, Gujarat State; 23, 24 and 26, Director, Department of Scientific Research and Cultural Affairs, Uttar Pradesh State; and the rest from the Chief Archaeological Chemist of the Survey.

7. KESAVA TEMPLE, SOMANATHPUR, DISTRICT MYSORE.—The work of chemical treatment and preservation of the sculptures was continued. An area of 27O sq. m on the central tower and domes in the interior was taken up for chemical treatment. The work involved removal of moss and lichen and other vegetational growth over the tower by chemico-mechanical means and removal of soot and smoke, etc., in the interior domes, by using aqueous solution of ammonia and teepol in varied concentration according to the intensity of vegetational growth or soot, etc. A part of the above mentioned portion was given fungicidal and preservative treatment with 3% solution of sodium pentachlorophenate.

8. KEDARESWARA TEMPLE, BELAGAVI, DISTRICT SHIMOGA.—Chemical treatments and preservation of carvings and designs were carried out on an area of about 175 sq. m. The treatment involved removal of lime wash from intricate carvings on parapet wall and removal of moss and lichen on the *mukha-mandapa* roof and inscription slabs. Glacial acetic acid solution of 1 % was used for the removal of lime wash and 1 % aqueous ammonia solution was used for the clearance of moss and lichen.

MADHYA PRADESH

9. VISHVANATH TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—Chemical treatment of the sculptures with lime wash, moss and lichen growth, in the main temple and its subsidiary shrines, was completed (pl. LXIV). The sculptures were given fungicidal treatment and preserved.

10. STUPA NO. 2, SANCHI, DISTRICT RAISEN.—A part of the railing around the *stupa,* overlooking the small lake, which was thickly encrusted with lichen and moss growth and flaking on account of crystallization of soluble salts, was fully cleaned and preserved.

MAHARASHTRA

11. CAVES, AJANTA, DISTRICT AURANGABAD.—The work of chemical treatment in the caves was taken up in accordance with the recommendations of the Expert Committee. In Cave no. 6, experiments were conducted for the removal of the thick layer of soot accummulated over the painted surface. The bulk of the soot was removed successfully, uncovering hues of varying values. The experiments were later approved by the Committee. The recording of temperature and relative humidity data was continued in Cave nos. 1, 2, 6, 16, and 17. The hygroscopic moisture content determinations of mud plaster and rock samples are in progress. Cave no. 11 was fumigated with carboxide gas for assessment of its efficacy in the extermination of insects that have bred in the carrier layer of the paintings and have extensively burrowed in the plaster making it weak and, at places, even hollow. During the experimentation the cave was sealed for 30 hours and 17.6 kg. of carboxide comprising a mixture of ethylene oxide and carbondioxide in 1: 9 proportion was released in the cave. The painted pilaster in the verandah of the northern cell of the cave, was applied with 0.5% sodium pentachlorophenate solution for studying its effect on further burrowing of holes by the insects.

The filleting of loose plaster in Cave nos. 6 and 10 is in progress. The work of removal of dust, dirt, cobwebs and insects from the paintings (pl. LXV) and sculptures in all the caves is also in progress. Some experimental work on the elimination of chalkiness and other accretion that have appeared on some parts of the paintings was carried out.

12. CAVES, ELLORA, DISTRICT AURANGABAD.—Consolidation and fixing of the loose painted plaster in the shrine of Cave no. 32 has been carried out with the help of Plaster of Paris, Fevicol, etc. Trials for clearing of the painted surface of white exudation were also conducted.

ORISSA

13. BUDDHIST MONASTERY, RATNAGIRI, DISTRICT CUTTACK.—The beautiful loose sculptures and carvings were cleared of moss and lichen. Soluble salts were also extracted with paper pulp applications. Fungicidal and preservative treatments were given.

14. PARBATI TEMPLE, BHUBANESWAR, DISTRICT PURI.—Chemical conservation of the sculptures, carvings and mouldings on the exterior of the big temple was completed. The eroded decoration of the lower friezes of this temple was consolidated.

15. SIDDHESWARA TEMPLE, BHUBANESWAR, DISTRICT PURI.—Chemical cleaning of moss, lichen and fungus growth, from the roof of the *jagamohana* down to the lower levels, was executed. Fifteen subsidiary shrines were also cleaned and given a surface coating with polyvinyl acetate solution for consolidation of friable stone after removal of soluble crystalline salts.

16. SUN TEMPLE, KONARAK, DISTRICT PURI.—Moss, lichen and bearded growth of roots were cleared from the western portion of northern vertical wall. Some fresh accretions on the previously cleaned areas were also removed.

17. CAVE NO. 9, UDAIGIRI HILL, MANCHAPURI, DISTRICT PURI.—The extensive growth of moss and lichen on the sculptures in the exterior and interior of the cave were cleaned and given fungicidal and consolidation treatment on the surface.

PUNJAB

18. TOMB OF PUPIL MUSICIAN, NAKODAR, DISTRICT JULLUNDUR.—Tiles with paintings and inlay- work on the exterior of the tomb were cleaned of varied types of accretions including moss, dust, ochres and grease. Ammonia and turpentine were effectively used in removing moss on the painted areas.

TAMIL NADU

19. KAILASNATHA TEMPLE, KANCHIPURAM, DISTRICT CHINGLEPUT.—Paintings, exposed earlier in about 12.8 sq. m area, were maintained by re-treating them. In Cell nos. 1 to 3, 27 and 28, paintings were exposed by removing thick lime plaster, lime wash, etc. In some areas, single, double and triple layers of paintings were exposed.

20. GOVARDHANA PANEL, KRISHNA MANDAPA, MAHABALIPURAM, DISTRICT CHINGLEPUT.—Chemical treatment and preservation was carried out in an area of 75.5 sq. m. Glacial acetic acid in suitable proportion in aqueous media was mostly used for the removal of the white calcium salt deposits. The extant painted patches were brightened with solvents, and thereafter consolidated and preserved.

21. BRIHADESVARA TEMPLE, THANJAVUR, DISTRICT THANJAVUR.—The sculptures on the western and southern sides of Rajarajan Thiruvail and inscriptions on the northern, southern and eastern *dallans* were chemically preserved. The work executed on an area of 44 sq. m involved the removal of moss, lichen, lime wash and other stains in addition to general cleaning. The inscriptions in the entire temple-complex have now received chemical treatment, preservation and consolidation. Soluble crystalline salts were extracted with paper pulp applications wherever necessary.

UTTAR PRADESH

22. PAINTINGS IN KHWABAGH AND LIBRARY, FATEHPUR SIKRI, DISTRICT AGRA.—The paintings and gold inscriptions, executed on the stone surface of the walls, and available in several places in fragments, were cleaned of accretions and consolidated.

23. SHANTINATH TEMPLE, DISTRICT HAMIRPUR.—Oil stains and vermilion marks on three sculptures were removed by using acetone and toluene, and hardened accretions by treating with soponin in water. An inscription on the pedestal of an image was given paper pulp treatment, and was thereafter coated with thin transparent resin solution. The vegetational growth on the roof and on the outer walls was chemically removed.

24. SHER ZAMAN KHAN'S TOMB, JAUNPUR, DISTRICT JAUNPUR.—Moss, lichen and vegetational growth on the exterior of the tomb were chemically cleaned.

25. PAINTINGS IN RANI LAKSHMI BAI'S PALACE, JHANSI, DISTRICT JHANSI.—Chemical treatment of the varnish-coated wall-paintings in the Rani's Retiring Room and in the stairways was continued. Some light-coloured pigments were uncovered after clearing of the accretion with butyl lactate and other solvents.

26. CHUNAR FORT, MIRZAPUR, DISTRICT MIRZAPUR.—Plants and trees grown on the walls of the fort were chemically eradicated.

WEST BENGAL

27. MADAN MOHAN TEMPLE BISHNUPUR, DISTRICT BANKURA.—Fine terracotta carvings and mouldings on the exterior of the temple were cleaned.

28. RADHEY SHYAM TEMPLE, BISHNUPUR, DISTRICT BANKURA.—The work of clearing of moss and extraction of soluble salts from flaking terracotta carvings and mouldings on this temple was taken up.

29. PRATAPESWAR TEMPLE, KALNA, DISTRICT BURDWAN.—The work of removal of a crust of moss over the minutely-carved decorations and fungicidal treatment was taken up.

30. BASUDEO TEMPLE, BANSBARIA, DISTRICT HOOGHLY.—The work of removal of *sindur* and lime on the exquisite carvings and terracotta reliefs was completed. The terracotta decorations were consolidated with 3% polyvinyl acetate solution. A dense deposit of soot and ochres in the interior was also successfully cleared.

31. VRINDABAN CHANDRA TEMPLE, GUPTIPARA, DISTRICT HOOGHLY.—Paintings on the walls of the temple were chemically treated and preserved (pl. LXVI).

TREATMENT OF EXCAVATED OBJECTS AND MUSEUM EXHIBITS

Twelve wooden sculptures (pl. LXVII), from the Archaeological Museum, Halebid, which were thickly encrusted with soot and wax substances, were cleaned. Three garments of Tipu Sultan and one large torn canvas painting of 'the Fall of Srirangapatna' (pl. LXVIII) were also subjected to chemical treatment. Nine hundred and sixty-nine coins of various metals, obtained from different excavated sites, were cleaned and preserved. Besides, four bone and ivory objects from Kalibangan and thirty-one other objects are under chemical treatment.

The Southern Regional Laboratory of the Survey at Hyderabad chemically treated and preserved four hundred and seventy-seven coins and seventy-four excavated objects. Besides, four charcoal sketches by Hickens, exhibited from the Archaeological Museum, Srirangapatna, and three paintings from Archaeological Museum, Madras, were cleaned, repaired and preserved. The sketches were deacidified and cleared of mildew spots, fox marks and other disfigurements with organic solvents. The Zonal Laboratory of the Survey at Madras chemically treated and preserved fifty-one coins.[1]

Several antiquities in the Natural History Section of the Chandradhari Museum, Darbhanga, were chemically treated and preserved.[2]

ANALYSIS AND RESEARCH[3]

GEOCHRONOLOGICAL STUDIES.—The soil-samples collected in the excavation at Purana Qila, New Delhi, were chemically analysed. The heavy mineral analysis in respect of the samples is in progress.

CHEMICAL ANALYSIS.—Chemical analysis of the contents of a jar-fragment from Arikamedu is in progress. Report on the analysis of three glass specimens from Dharnikota is under progress. Sixty cross-sections of the paintings at Ajanta, Srirangapatna, Kanchipuram and Ellora were prepared in the Southern Regional Laboratory, Hyderabad. A study of behaviour of preservative and varnish-coats in varying humidities and temperatures for blanching and chalkiness on painted surface is in progress. Micro-chemical analysis of blue pigments and chalky deposits on paintings at Ajanta was conducted by the Western Zone, Aurangabad.

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[1] Information from the Chief Archaeological Chemist of the Survey.
[2] Information from the Curator, Chandradhari Museum, Darbhanga.
[3] Information from the Chief Archaeological Chemist of the Survey.

X. ARCHAEOLOGICAL GARDENS[1]

ANDHRA PRADESH

1. HILL-TOP GARDEN, NAGARJUNAKONDA, DISTRICT GUNTUR.—The site-clearance work in Enclosure I continued and much of the portion has been cleared.

2. KHAZANA BUILDING MUSEUM, GOLCONDA, DISTRICT HYDERABAD.—A small garden, divided into 4 quadrants was laid out inside the Museum and ornamental plants and thuja were planted at suitable places.

3. QUTUB SHAHI MONUMENTS, GOLCONDA, DISTRICT HYDERABAD.—Two electric water-pump sets were installed for regular water supply to the gardens. Two barren plots in front of Mohd. Quli Qutub Shah's tomb were developed, and in one of them artificial rockery was set up and planted with different species of cactii succulents. The land around the rockery was converted into a lawn and ornamental plants in pots were arranged in groups at suitable places. The border of this plot was decorated with artistic and meandering flower-beds having brick and lime-mortar lining. The beds were planted with *saru* and thuja trees. Cannas, roses and other ornamental plants were planted in the flower beds of the adjacent plot. In order to improve the vista, branches of the trees which were obstructing the view of the monument were cut down. Few more pomegranate, papaya, guava and fig trees were planted.

4. YELESWARAM PAVILION GARDEN, HYDERABAD, DISTRICT HYDERABAD.—The garden in the premises of the office was maintained properly throughout the year, and a few more ornamental plants were planted.

5. VICTORIA JUBILEE MUSEUM, VIJAYAWADA, DISTRICT KRISHNA.—The garden was maintained properly and new plants in pots were kept at suitable places.

6. SITE MUSEUM, KULPAK, DISTRICT NALGONDA.—An electric water-pump set was installed for water supply in the garden

BIHAR

7. EXCAVATED REMAINS, NALANDA, DISTRICT PATNA.—In order to augment water supply to the garden around the remains, necessary arrangements were made for boring of a deep well.

DELHI

8. HUMAYUN'S TOMB, NEW DELHI.—A few lawns were returfed. Necessary repairs to the glass house were carried out. An electric pump set was installed.

[1] Information from: 2-6, Director of Archaeology and Museums, Andhra Pradesh; 17, Director of Archaeology, Gujarat; and the rest from the Chief Horticulturist of the Survey.

9. KHAIRUL MANAZIL MOSQUE, NEW DELHI.—Laying out of a garden around this monument was completed.

10. KOTLA FIROZ SHAH, NEW DELHI.—Preliminary operations for turfing the old plots were initiated and an electric pump set was installed. Desilting of *baori* and drain was also carried out.

11. NAJAF KHAN'S TOMB, NEW DELHI.—The work of renewing the garden around this monument is in progress.

12. PURANA QILA, NEW DELHI.—The work of laying out the garden is under progress.

13. QUTB GARDEN, NEW DELHI.—Returfing of some plots with Calcutta *dhoob* was undertaken and pipe-lines were laid out.

14. RED FORT, DELHI.—Pipe-lines were laid out to facilitate the watering system of this garden.

15. SAFDARJANG TOMB, NEW DELHI.—Rear plots were returfed with good quality of Calcutta *dhoob* grass.

16. SHERSHAH GATE, NEW DELHI.—The work of laying out of pips-lines at this garden is under progress.

GOA

17. BOM JESUS CHURCH, VELHA GOA.—Beautification of the area around the Church is in progress.

18. SE CATHEDRAL CHURCH, VELHA GOA.—Lawns in front of the church were returfed. Returfing of the lawns of the central garden is in progress. In order to augment water supply the existing well adjacent to St. Cajethan was enlarged.

GUJARAT

19. SIVA PANCHAYATAN TEMPLE, ATARSUMBA, DISTRICT SABAR KANTHA.—A considerable area around the monument was decorated with suitable plants.

KARNATAKA

20. ARQUILLA, BIJAPUR, DISTRICT BIJAPUR.—Distributory pipe-lines in the lower terrace were laid out.

21. GOL-GUMBAD, BIJAPUR, DISTRICT BIJAPUR.—Construction of a conservatory to house the tender and delicate plants, and returfing of lawns of upper platform are in progress.

22. IBRAHIM ROUZA, BIJAPUR, DISTRICT BIJAPUR.—Stone edging of the plots of the lawns was carried out.

23. JAMI-MASJID, BIJAPUR, DISTRICT BIJAPUR.—Extension of the garden in the front side of the mosque was completed.

24. HOYSALESWARA TEMPLE, HALEBID, DISTRIGT HASSAN.—Preparatory cultivation relating to returfing of lawns was carried out.

25. DARIA DAULAT BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—Fencing with barbed wire towards eastern side was completed. A river side garden along the bank of the river Cauvery was laid out. This garden was reoriented according to Charbagh system and plantation completed.

26. GUMBAZ GARDEN, SRIRANGAPATNA, DISTRICT MANDYA.—Reorientation of this garden is under progress. Levelling work has been completed. Plantation of shrubbery border is also being attended to.

27. KESAVA TEMPLE, SOMANATHPUR, DISTRICT MYSORE.—Preparatory cultivation before returfing of lawns is in progress. All the old pipe-lines were removed, repaired and relaid for easy irrigation.

MAHARASHTRA

28. BIBI-KA-MAQBARA, AURANGABAD, DISTRICT AURANGABAD.—Distributory pipe lines were laid out and construction of an over-head tank completed. Preliminary opera tions for turfing were also initiated.

UTTAR PRADESH

29. AKBAR'S TOMB, AGRA.—Returfing of old plots, which were badly infested with weeds, was carried out. Work of improving the deer park is in progress. Necessary arrangements for boring a deep tube-well and installation of a generator set have been made.

30. IDGAH, AGRA.—Returfing of all the lawns of this garden was completed and the existing well was deepened.

31. KHAN-I-ALAM NURSERY, AGRA.—A deep tube-well was drilled to ensure regular playing of fountains of Taj Mahal. Necessary arrangements have been made to instal a pump set.

32. MARYAM'S TOMB, AGRA.—Old plots which have outlived their lives were returfed. To augment the water supply of this garden a well was bored.

33. TAJ-MAHAL, AGRA.—Lowering the level of one plot and regrassing of four plots was undertaken. Necessary arrangements have been made to instal a spare pump-set.

34. RAMBAGH, AGRA.—A few lawns were returfed and casualties in the orchard replaced.

35. FATEHPUR SIKRI, DISTRICT AGRA.—Necessary arrangements have been made for conducting boring and to instal a stand-by generator-set to run pump-sets, etc.

36. EXCAVATED REMAINS, KUSHINAGAR, DISTRICT DEORIA.—Returfing of rear plots was attended to and steps were taken to improve the water supply to this garden.

37. SAHET-MAHET, SRAVASTI, DISTRICT GONDA.—The work of laying out a garden at Sahet is in progress. Much of the area has already been levelled, involving heavy earth work.

38. NADAN MAHAL, LUCKNOW.—The work of laying out a garden including pipe-lines is under progress.

39. BUDDHIST REMAINS, SARNATH, DISTRICT VARANASI.—Lawns which were infested with weeds were returfed with Calcutta *dhoob.*

XI. PUBLICATIONS

PUBLICATIONS OF THE SURVEY

1. *Ancient India.*—No. 22 was published.

2. *Indian Archaeology—A Review.*—The number for 1965-66 was published.

3. GUIDE BOOKS.—*Chola Temples* by C. Sivaramamurti, *Khajuraho Museum* by K. Deva and B. S. Nayal, and *Monuments of Kerala* by H. Sarkar were published.

4. PICTURE POSTCARDS.—Picture postcard sets of Aurangabad and Daulatabad, Bijapur, Elephanta, Ellora, Gingee, Halebid, Konarak (Set A), Somanathpur, Sringeri, Thanjavur, Warangal, Hanamkonda and Palampet were printed.

OTHER PUBLICATIONS

ANDHRA PRADESH.—The Director of Archaeology and Museums, Andhra Pradesh, brought out the following publications: *Select Epigraphs of Andhra Pradesh, Corpus of Telangana Inscriptions, Andhra Sculptures, Perur Inscriptions, Stone Sculptures in Alampur Museum, History of Deccan,* vol. I, *Vishnukundins* and *Gold and Silver Coins of Sultans of Delhi.*

BIHAR.—*The Muslim Coins' Catalogue,* is under publication by the Chandradhari Museum, Darbhanga.

Mithila Prakasan, Allahabad, published *Kumrahar,* a guide-book in Hindi, by Shri Vijayakanta Mishra.

GUJARAT.—The Director of Archaeology, Gujarat, published *Srimati Kasturba's House* and *Birth Place of Mahatma Gandhiji and Gandhi Smarak Kirtimandir,* booklets in Gujarati and English languages.

KARNATAKA.—The Director of Archaeology and Museums, Karnataka, published a brochure, *Panorama of Karnataka.*

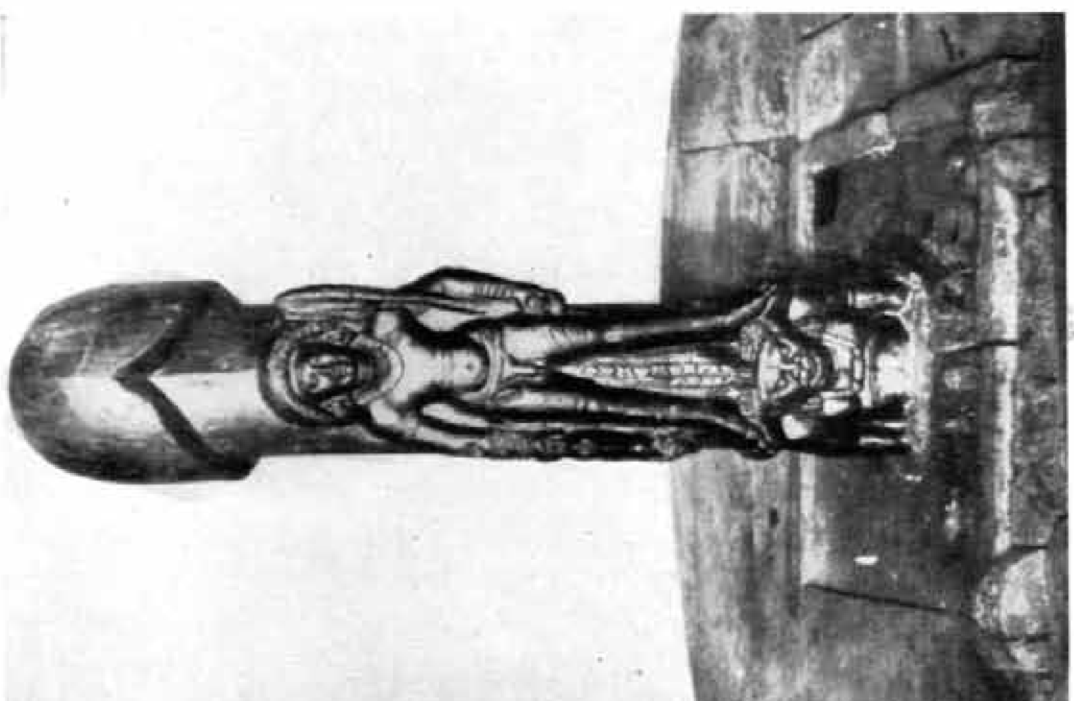
MAHARASHTRA.—*Prince of Wales Museum Bulletin,* no. 12, by Moti Chandra (ed.), *Indian Sculpture,* by B. V. Shetti, and *Mughal Painting* by S. K. Andhare were published by the Prince of Wales Museum, Bombay. *Stone Sculptures in the Prince of Wales Museum,* by Moti Chandra, is in press.

Bokardan Excavations 1973, S. B. Deo (ed.), was published jointly by the Nagpur and Marathwada Universities. *Temple Architecture and Sculptures of Maharashtra,* by G. B. Deglurkar, *Markandi Temples* by S. B. Deo, *Kuvalayamala: A Cultural Study,* by A. P. Jamkhedkar, and *Hemadpanti Temples,* by O. P. Verma, were published by Nagpur University.

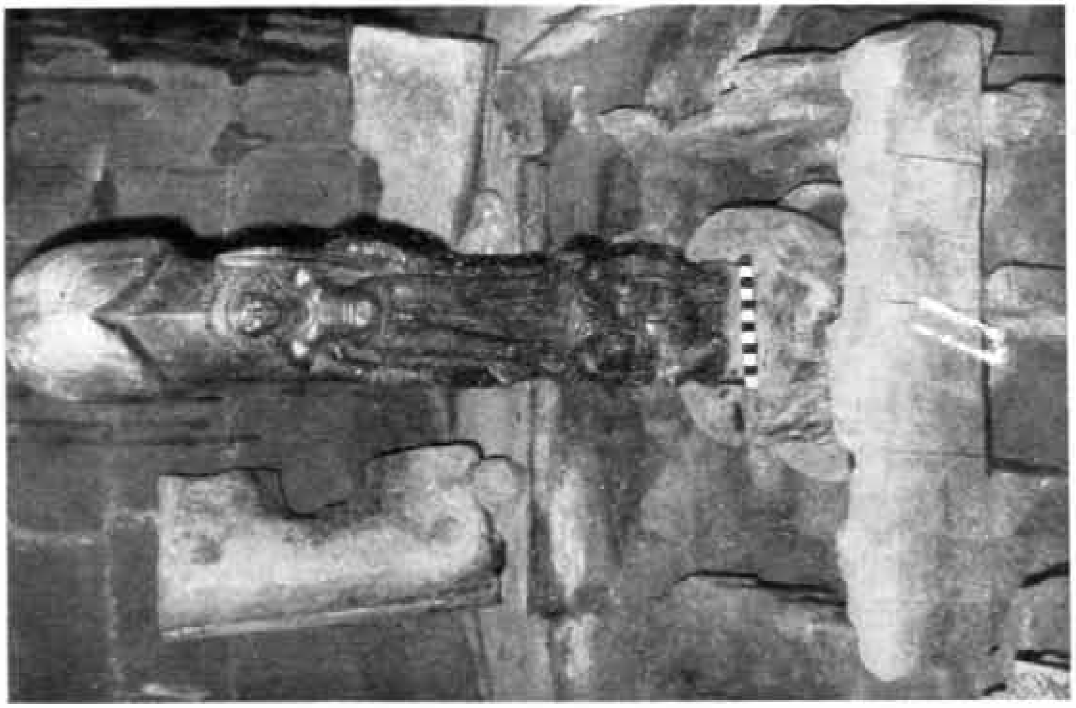
The Director of Archaeology, Maharashtra, published *Catalogue of Coins in the Central Museum, Nagpur—Coins of the Later Mughal Emperors,* part II, by M. K. Hussain.

ORISSA.—The Superintendent for Museums, Orissa, published *The Orissa Historical Research Journal,* vol. XVI, no. 3,; the next volume of the same journal is in press.

UTTAR PRADESH.—The Department of Scientific Research and Cultural Affairs, Uttar Pradesh, brought out the *Bulletin of Museums and Archaeology in Uttar Pradesh.*



A

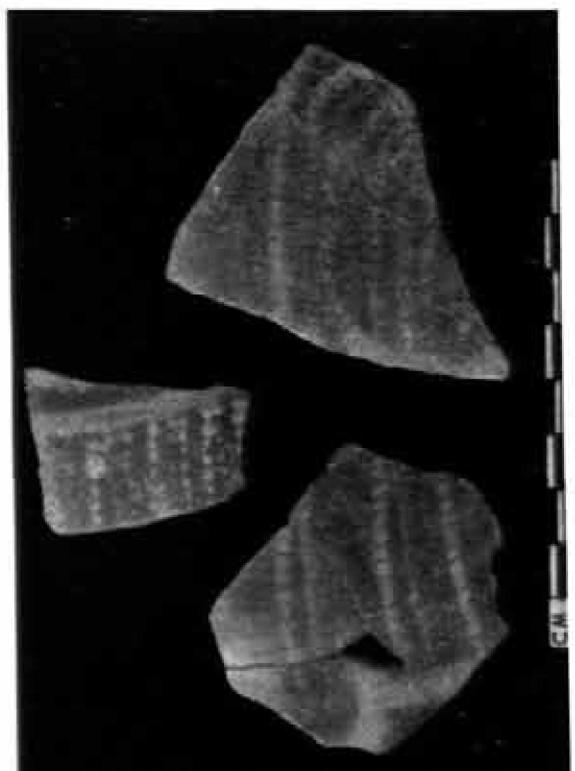


B

Gudimallam : A, Siva-linga, before excavation and B, after excavation. See p. 1



A

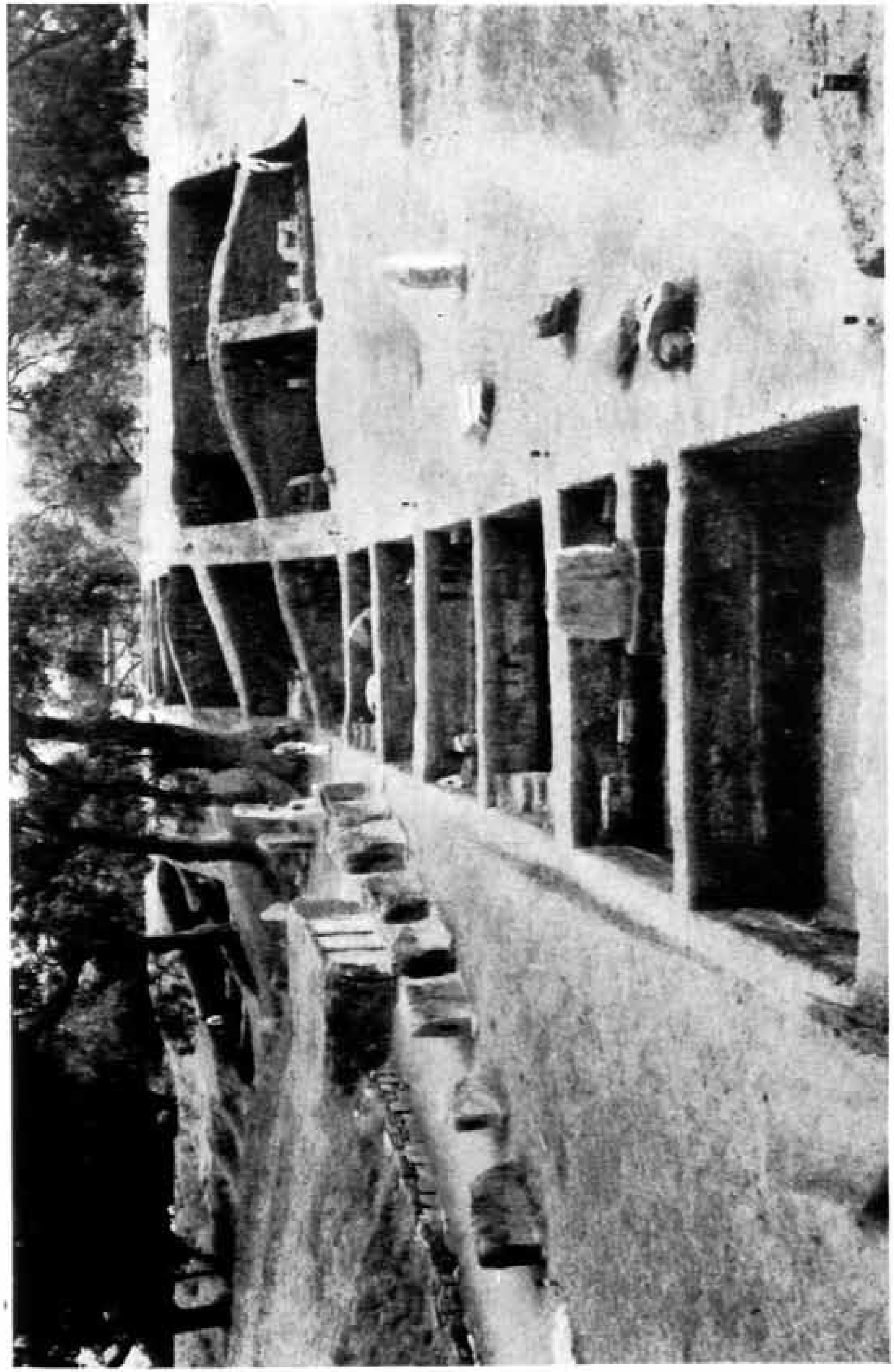


B



C

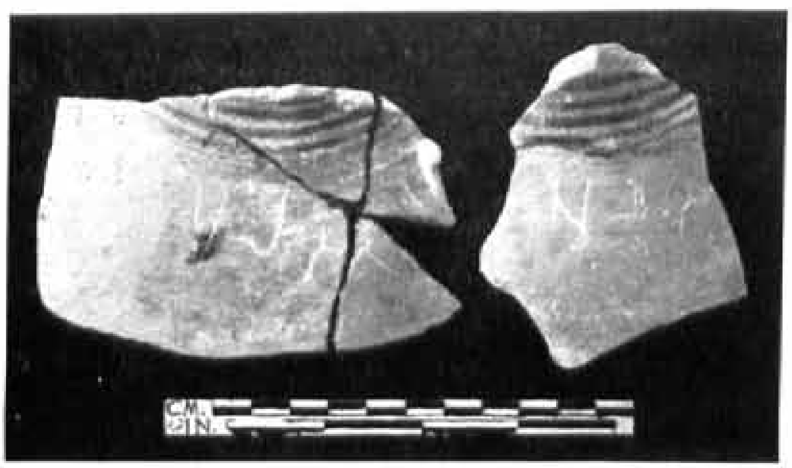
Gudimallam : A, *silver punch-marked coins* ; B, *Russet-coated White-painted pottery* ; *and* C, *Early Stone Age tools*. *See pp. 1-2*



Amaravati : view showing cutting across the mound. *See p. 4*



A

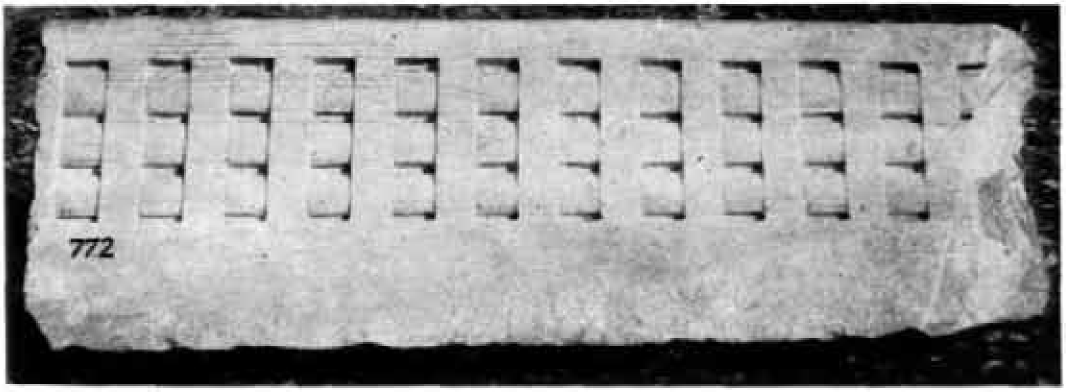


B

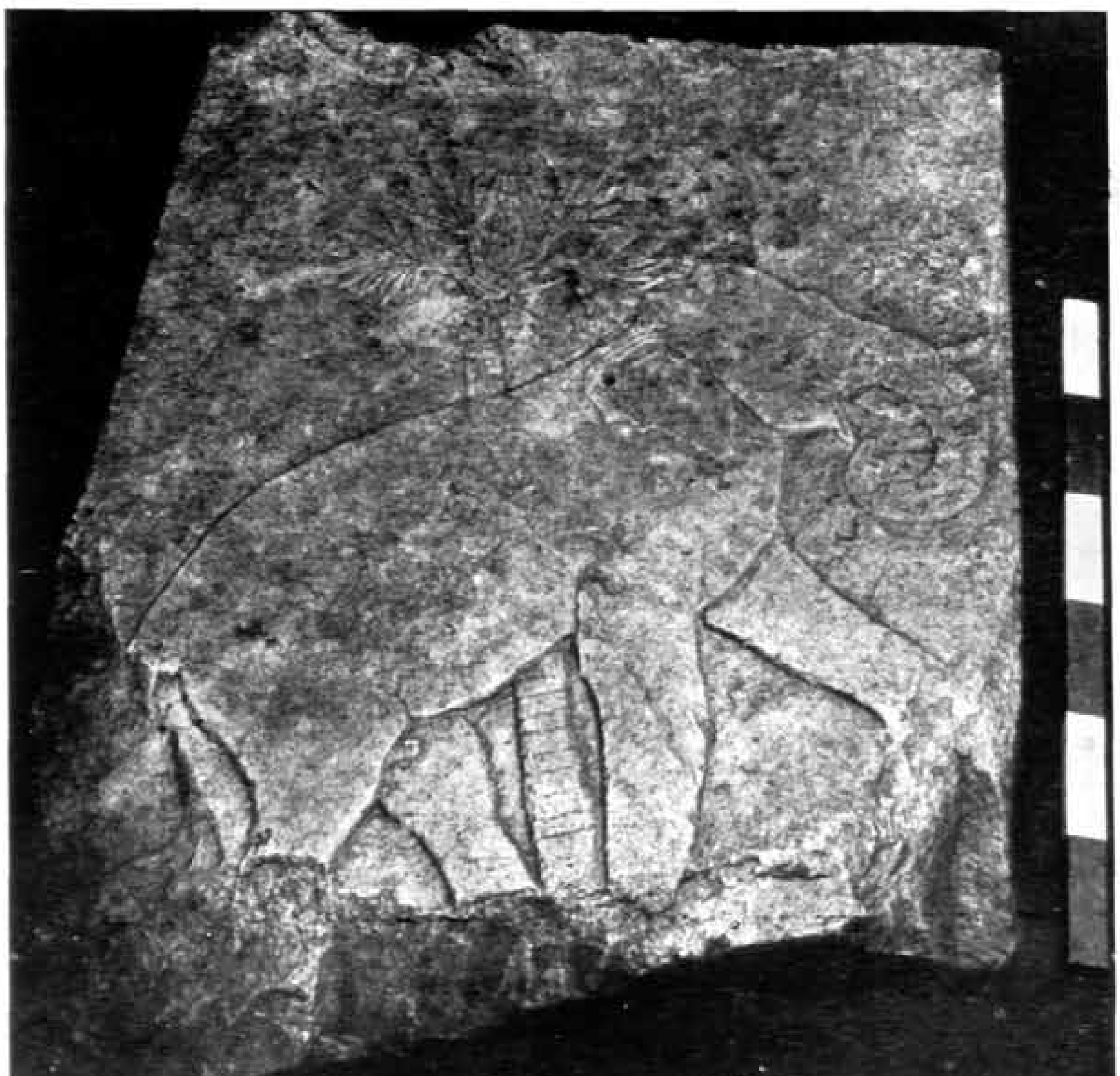


C

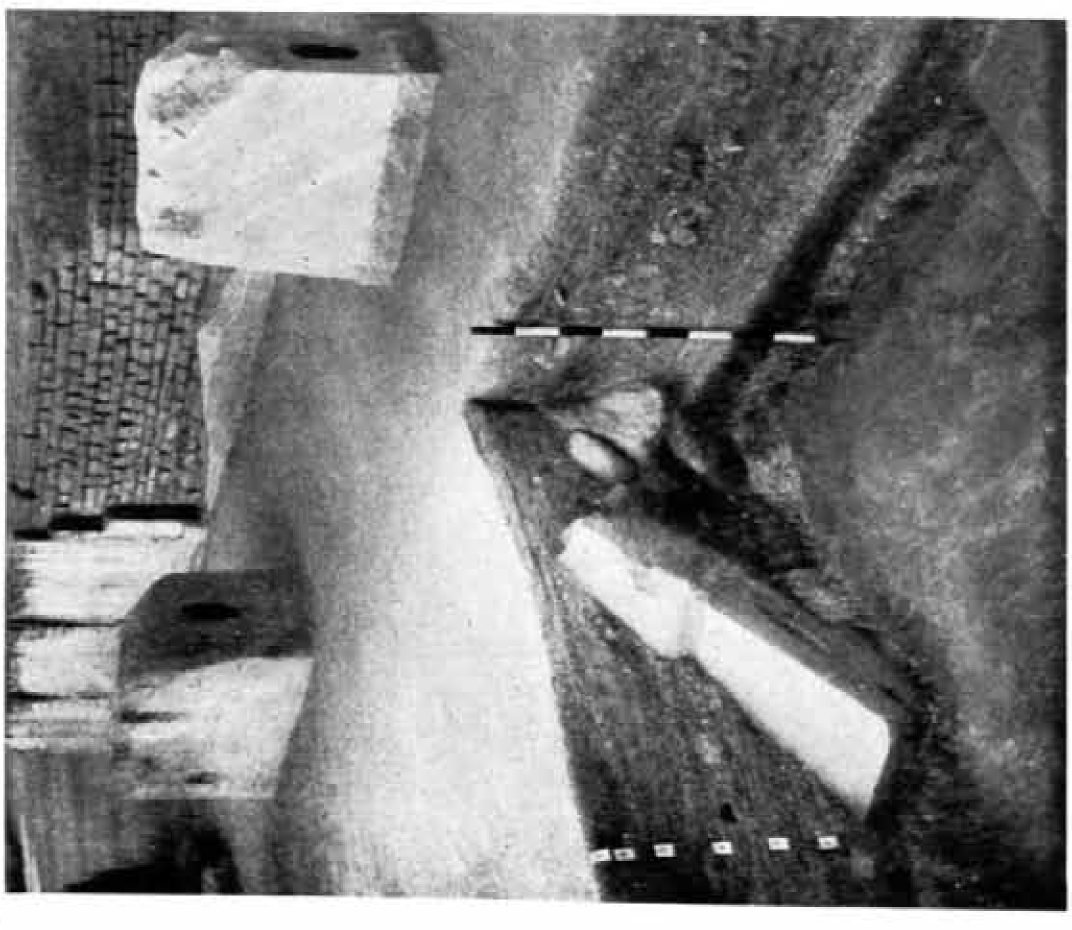
Amaravati : A, *inscribed dish Period I A*; B, *inscribed vase, Period I A*; C, *inscribed granite upright, Period I B.* *See p. 4*



A



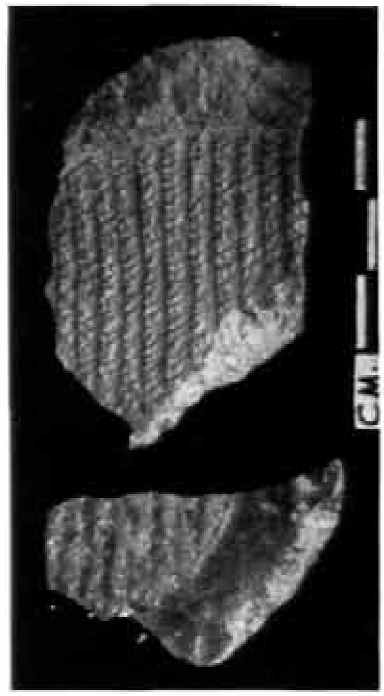
B



A



B



C

Amaravati : A, *section showing stratigraphical position of the granite uprights, Period I*; B, *Vishnukundin coins*; C, *clay sealings.* *See pp.* 4-5

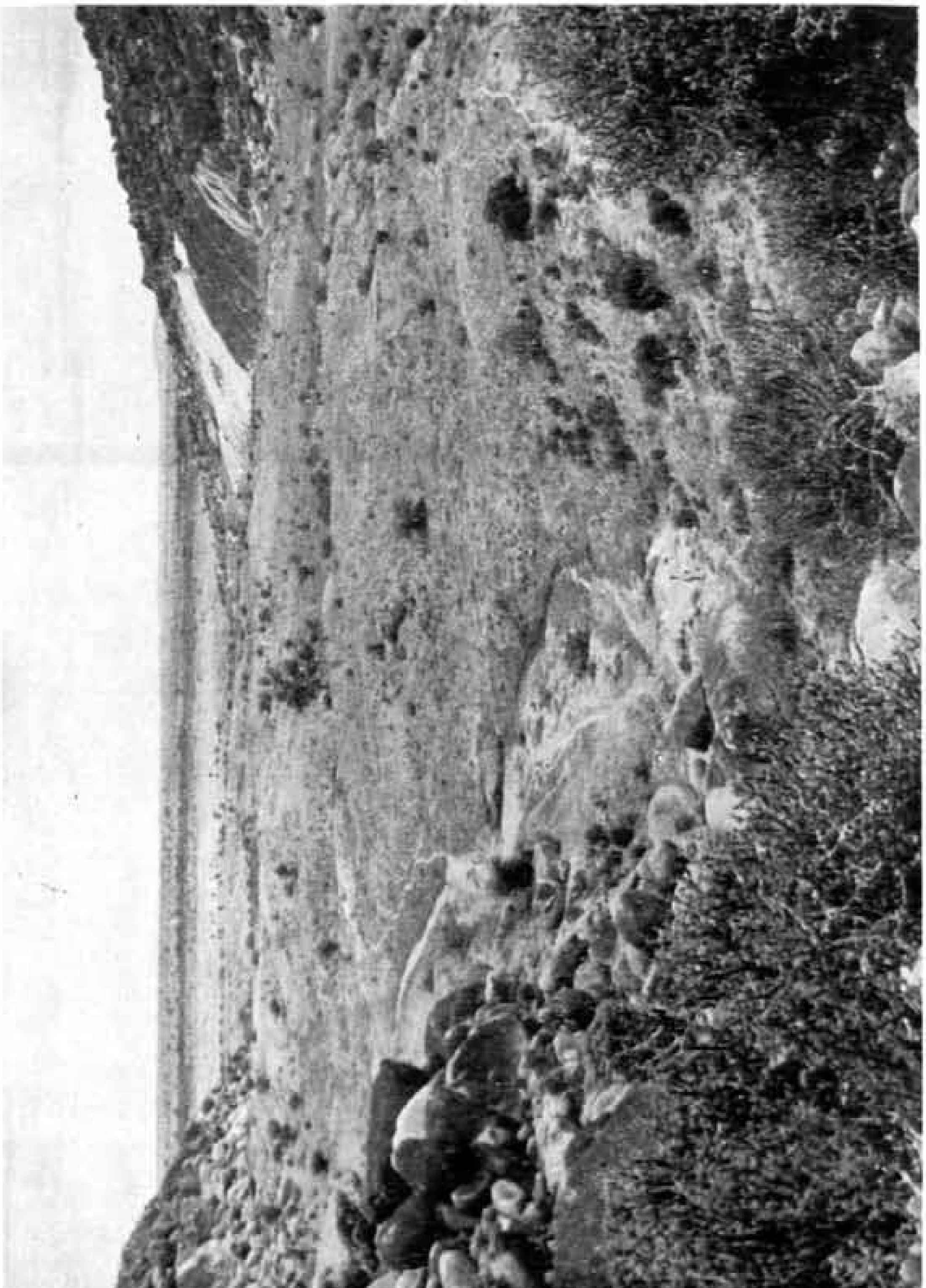


A



B

Golconda : A, *view showing Assembly Hall connected by road*; B, *remains of a road passing through tower and guard rooms.* *See p. 5*



Kanigiri Kondalu : view showing U-shaped valley. *See p. 6*

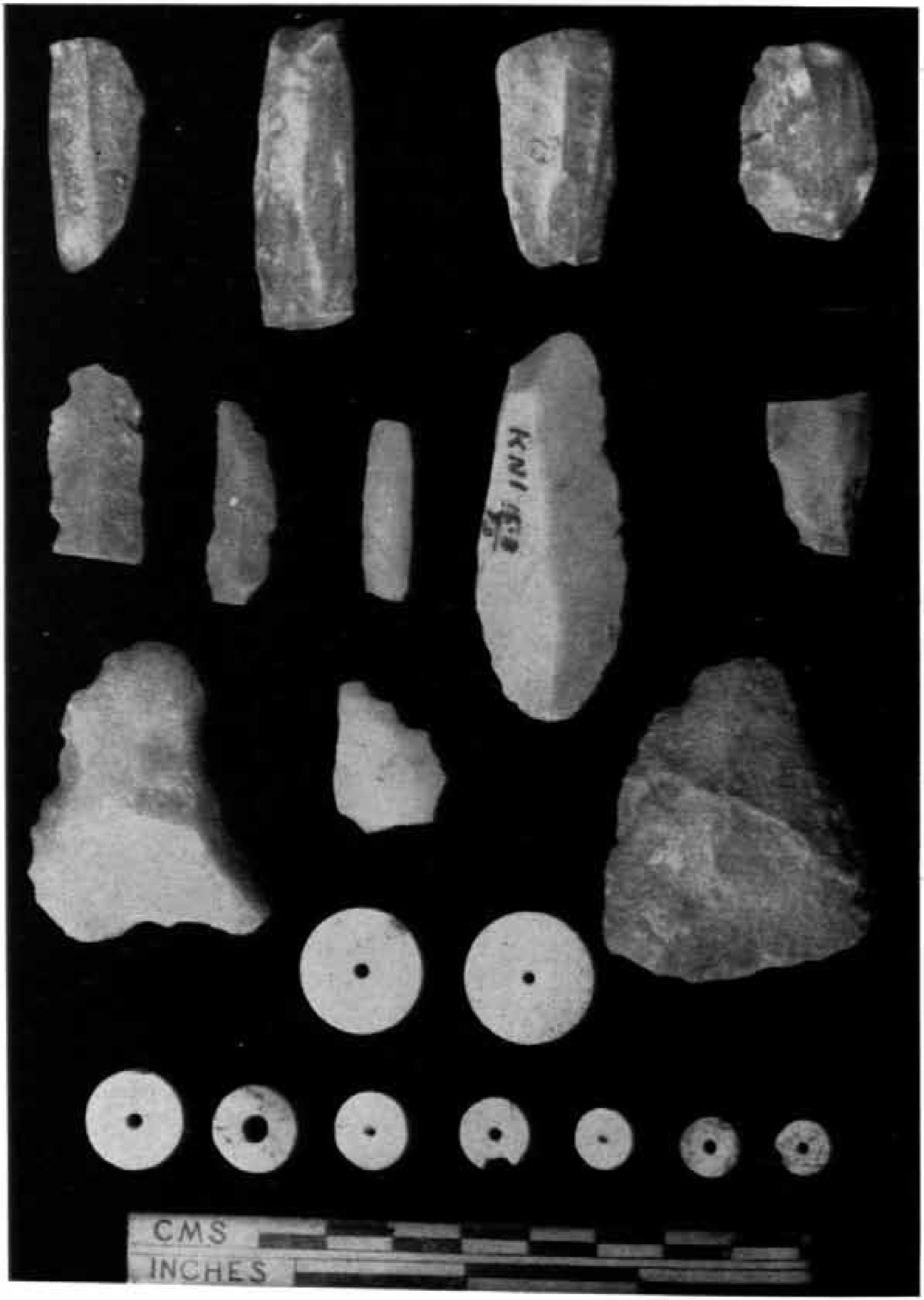


A

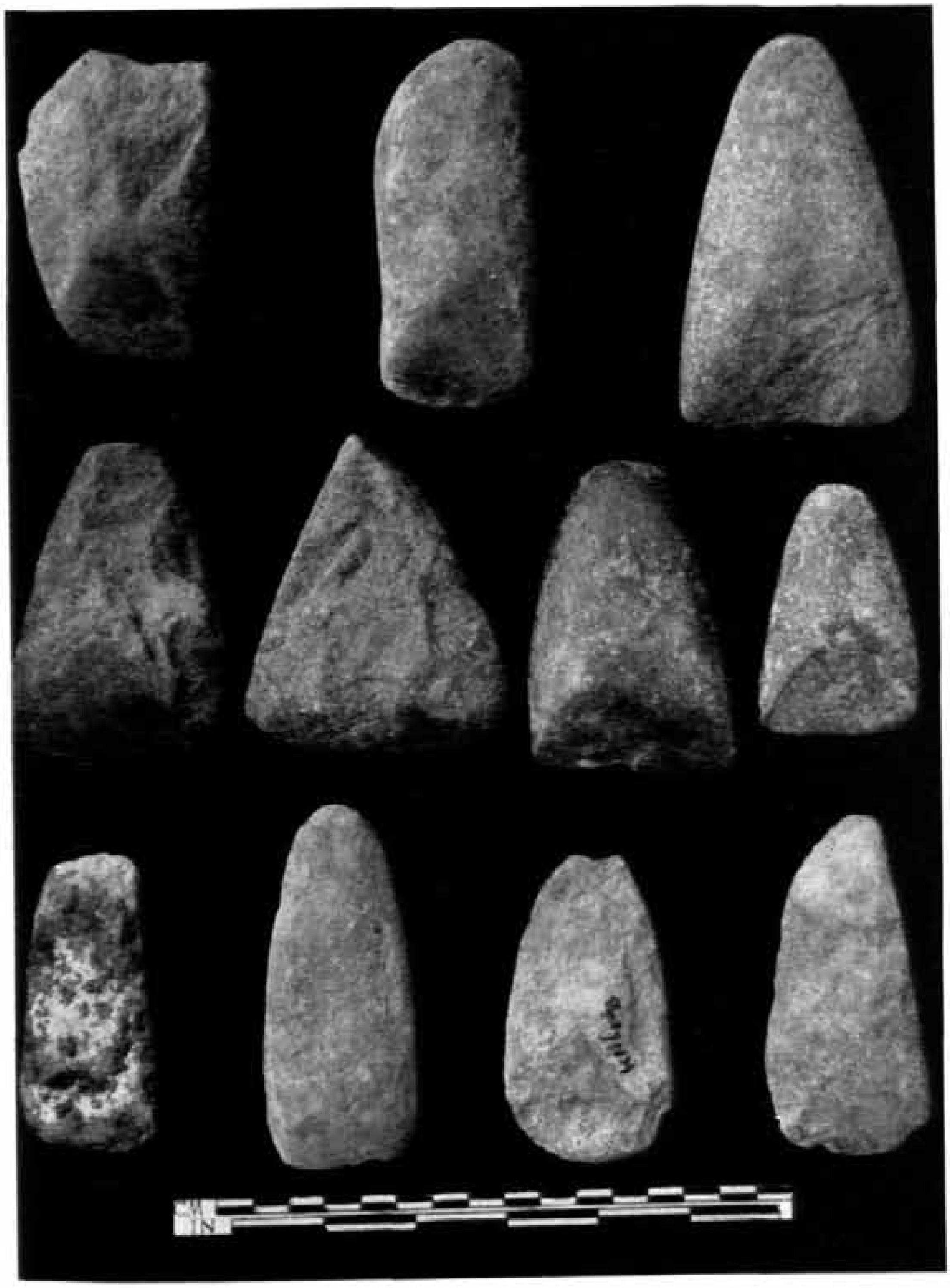


B

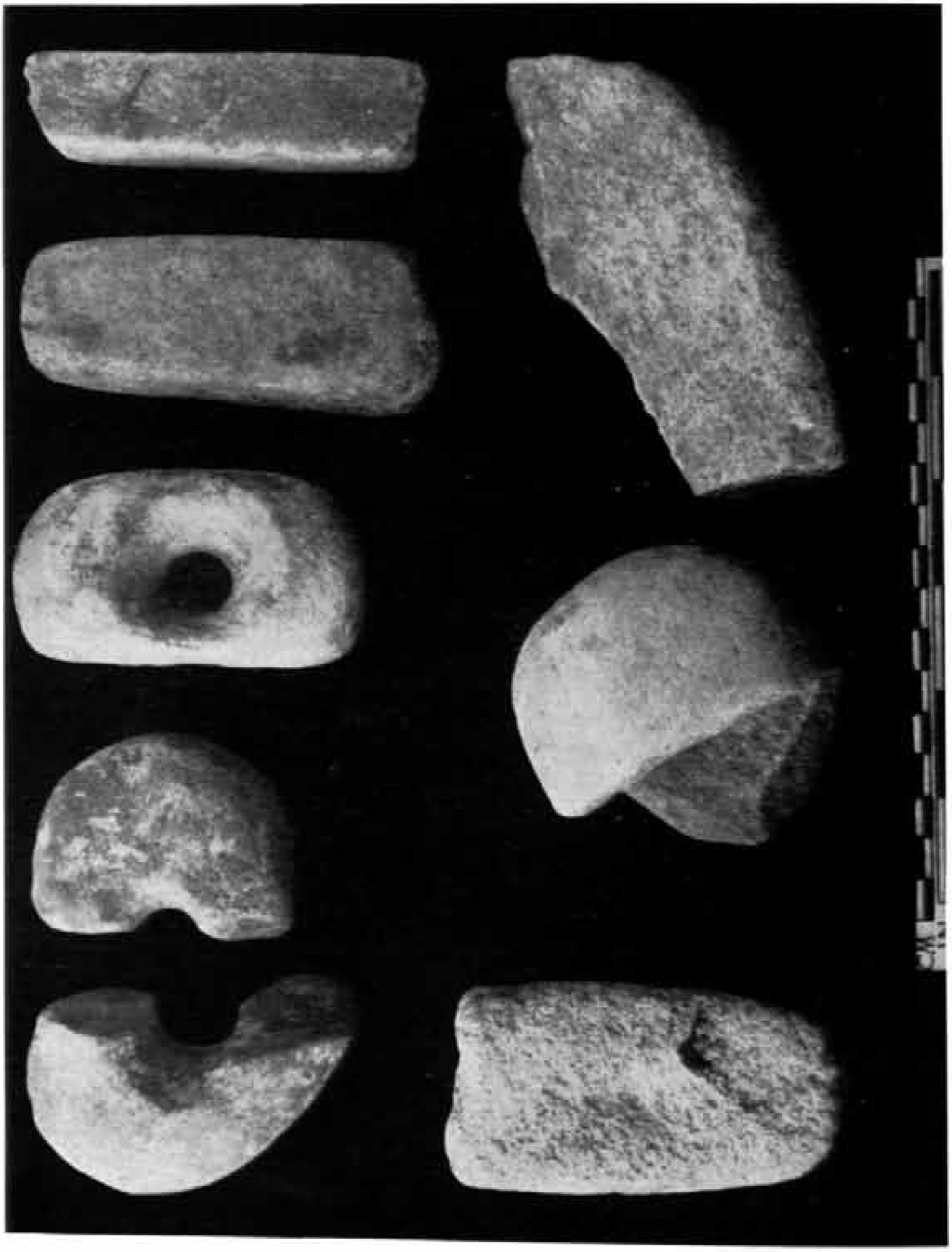
Kanigiri Kondalu : A, *neolithic handmade pottery*; B, *view showing neolithic rock-shelters and caves*; *See pp. 6-7*



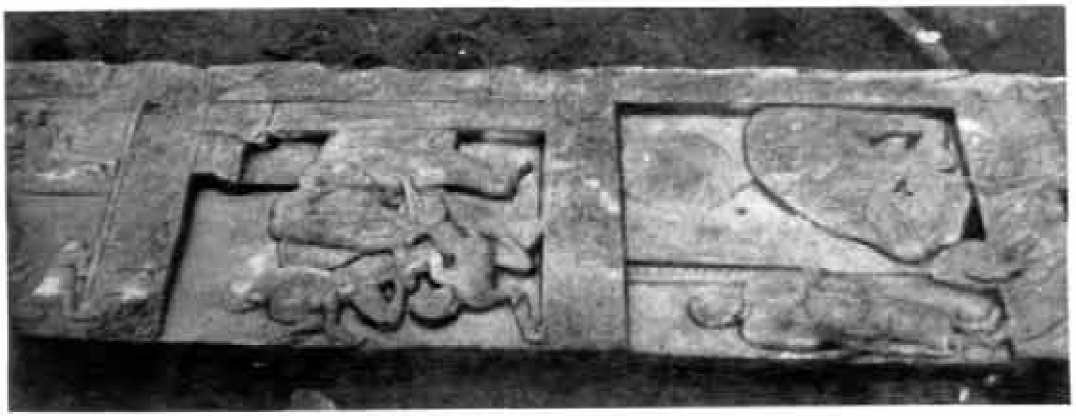
Kanigiri Kondalu : microliths, flake-tools and steatite beads. *See p. 6*



Kanigiri Kondalu : neolithic axes. *See p. 6*



Kanigiri Kondalu : mace-heads, grinders, etc. *See p. 7*

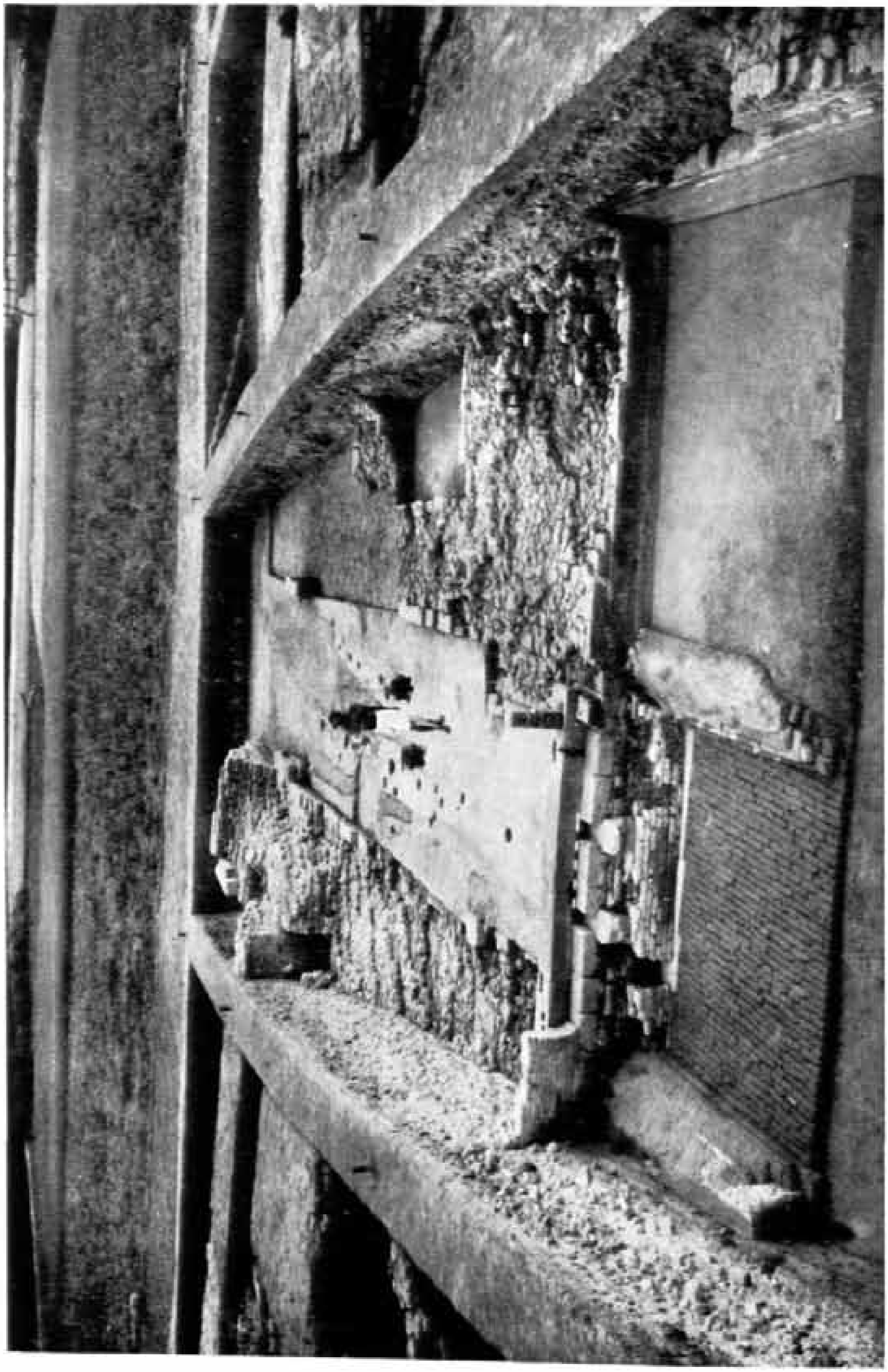


B

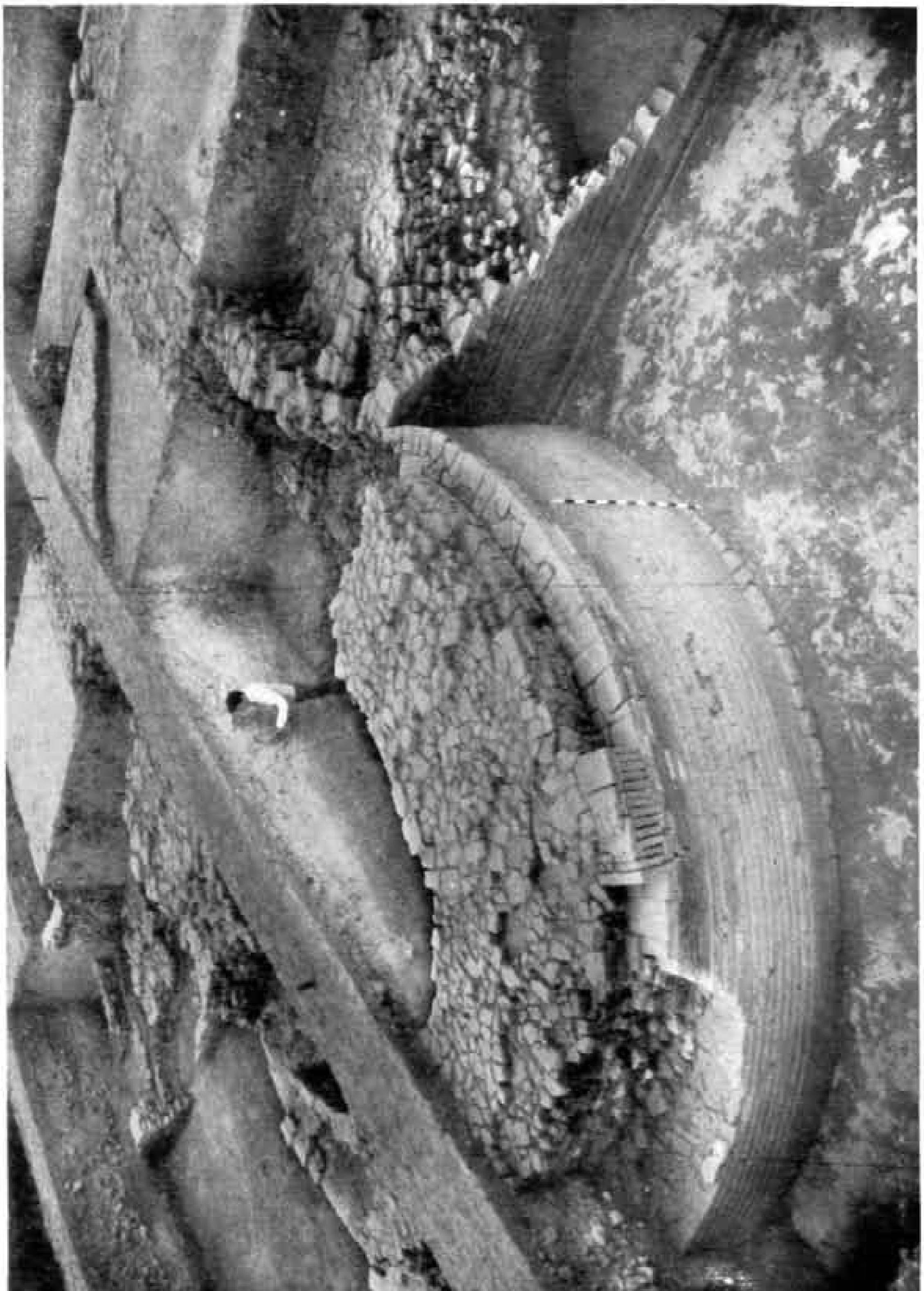


A

Chandavaram : A, view of the stupa; B, casing slab with Buddhist themes. See p. 7



Antichak : view showing entrance to the monastery and verandah. *See p. 9*



Antichak : circular structure projecting from the southern outer wall. *See p. 9*



Antichak : remains of underground chamber. *See p. 9*



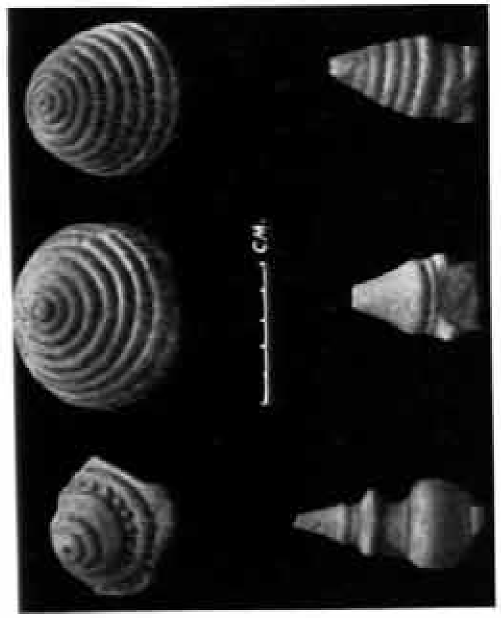
A



B

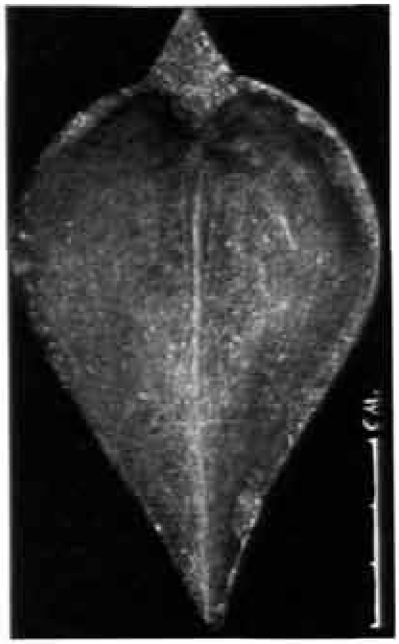


C



D

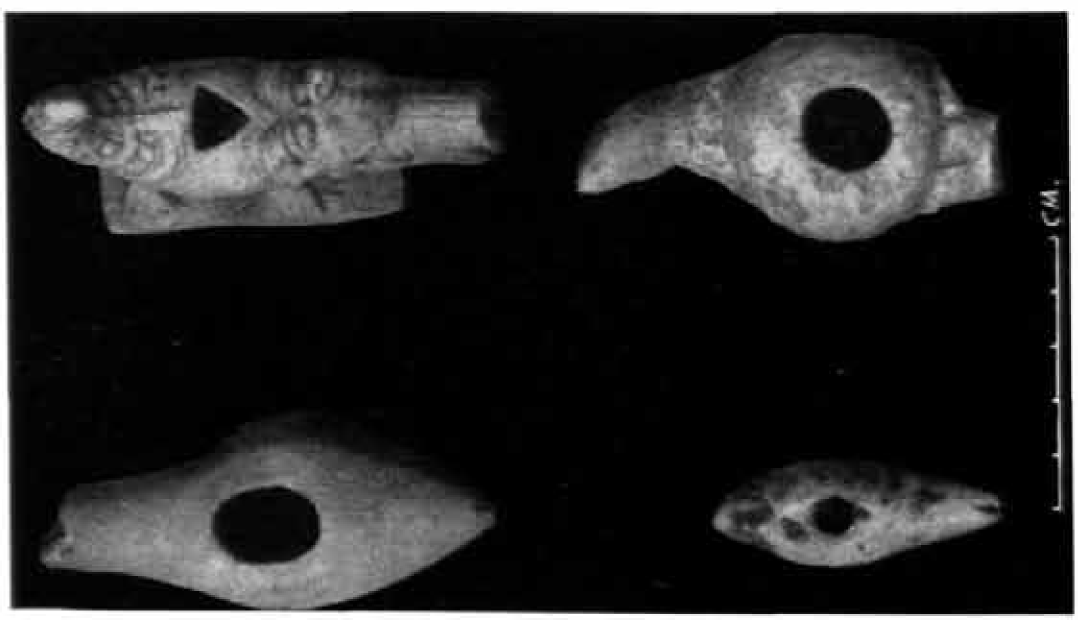
Antichak : A, Vaishnavī and Avalokiteśvara in black basalt; B, Avalokiteśvaras; C, terracotta sealings; D, terracotta miniature stupas. *See p. 9*



A

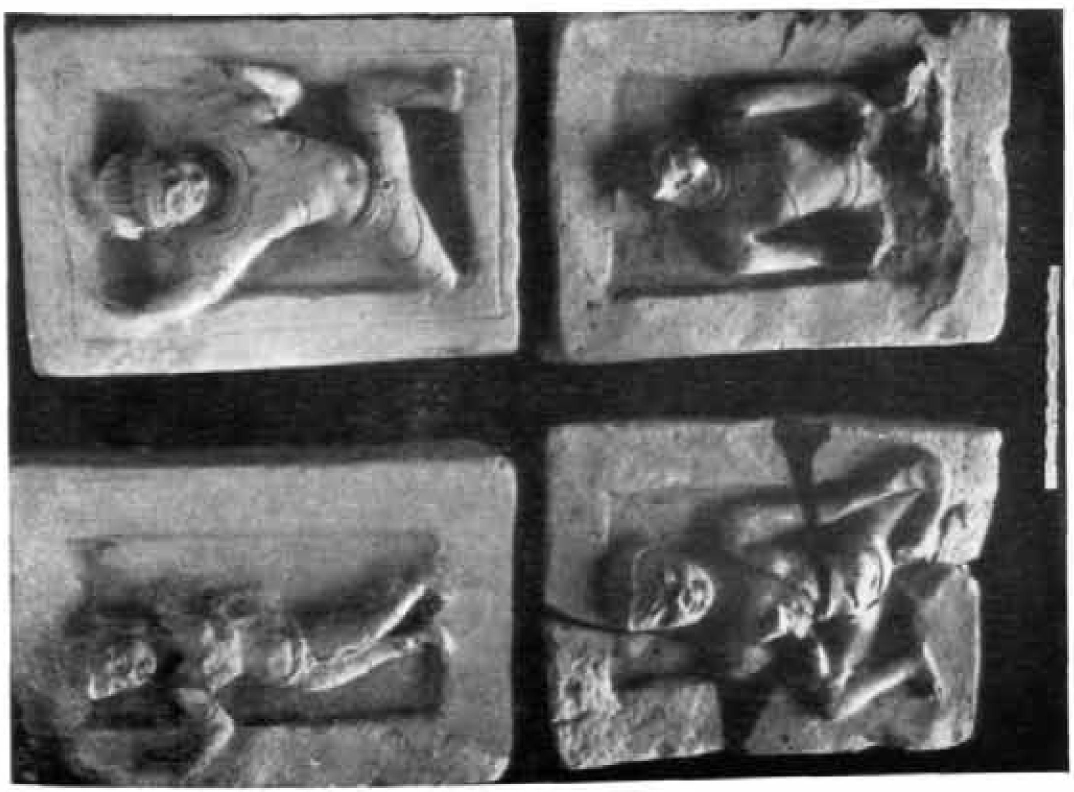


C



B

Antichak : A, *stone lamp*; B, *terracotta conch-shaped pots*; C, *terracotta makara-and tortoise-shaped knobs.* *See p. 9*

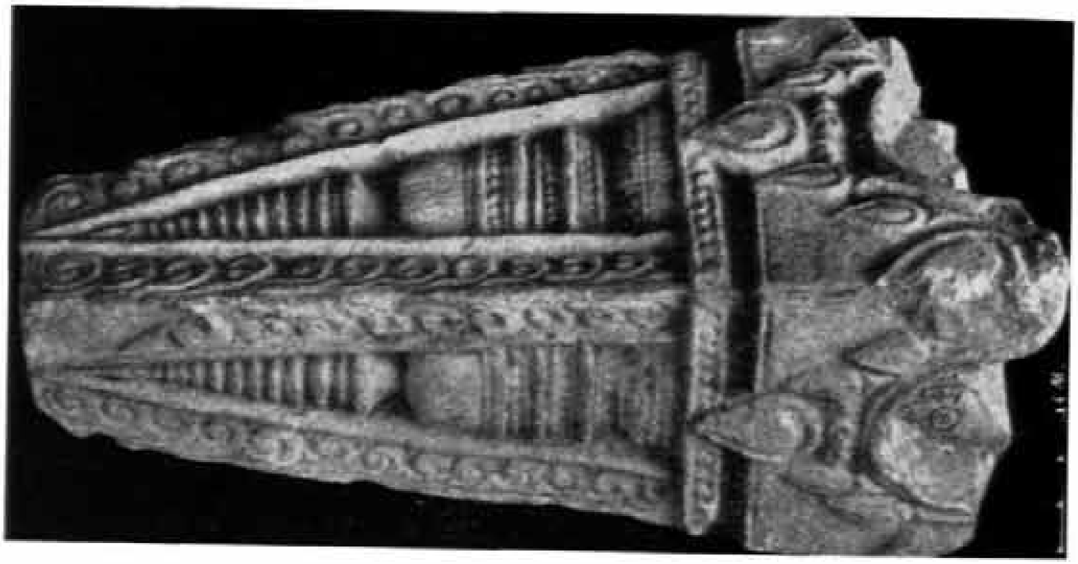


A

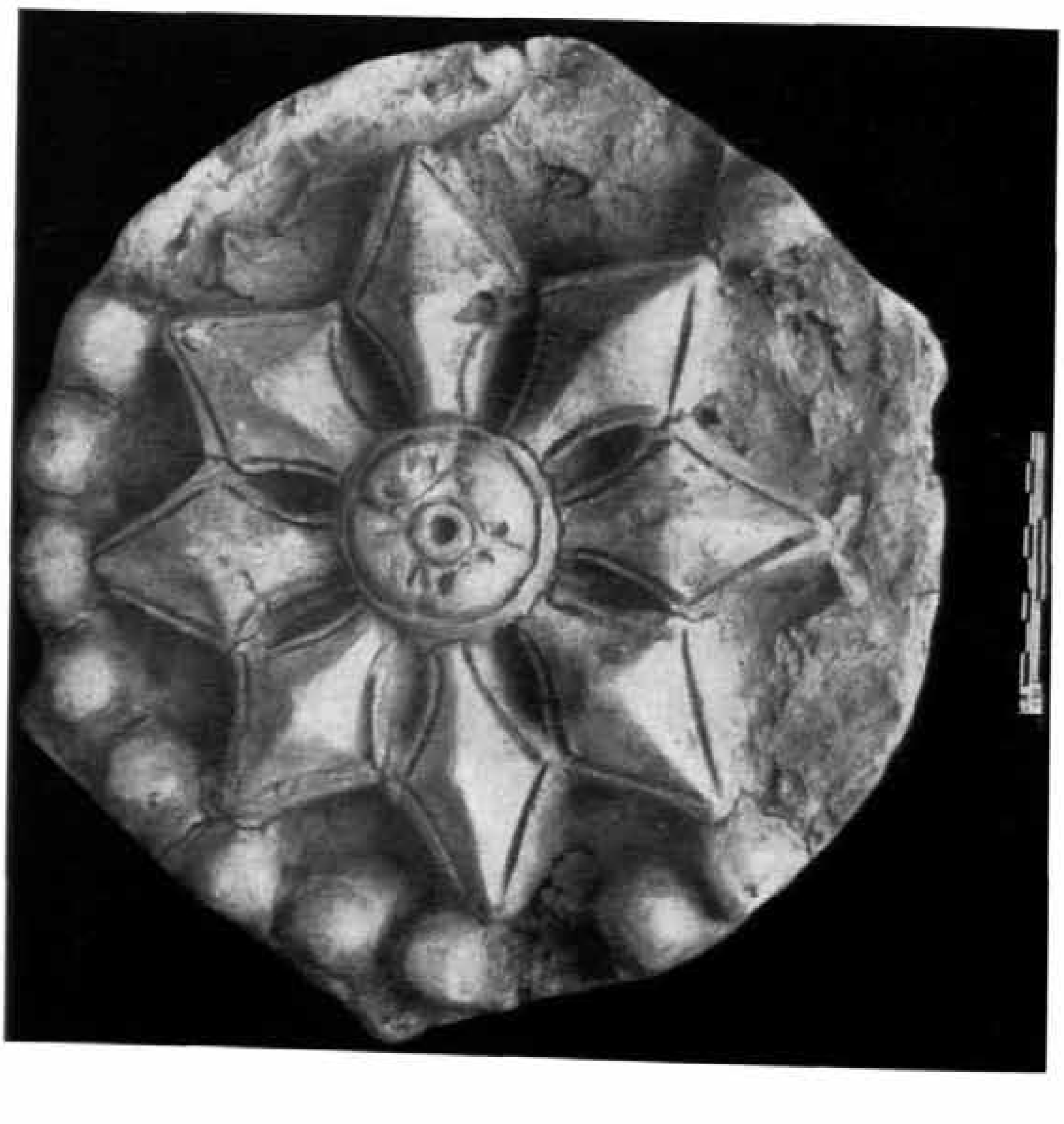


B

Antichak : terracotta plaques, A, with human figures; B, with lotus design. *See p. 9*

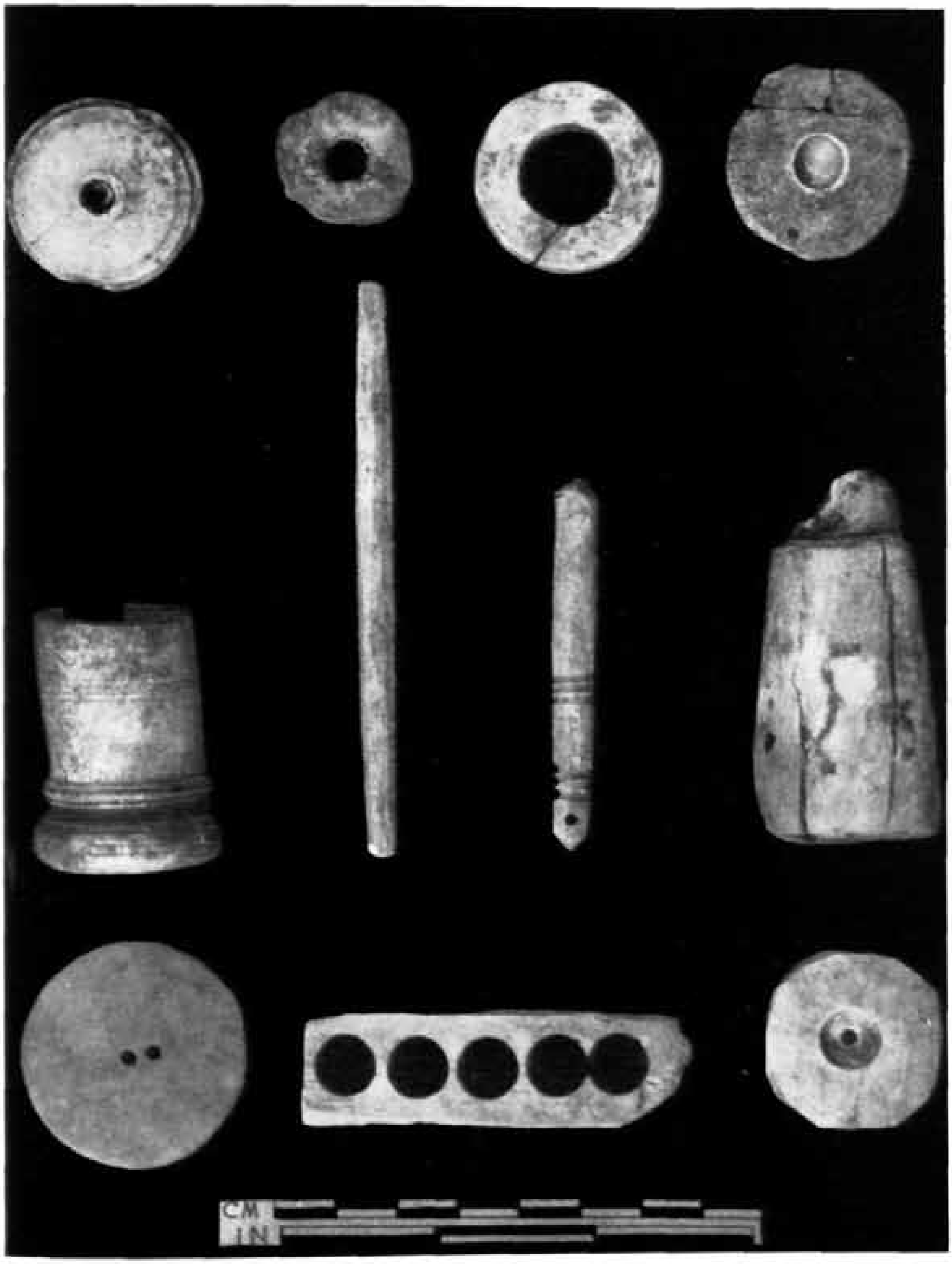


B

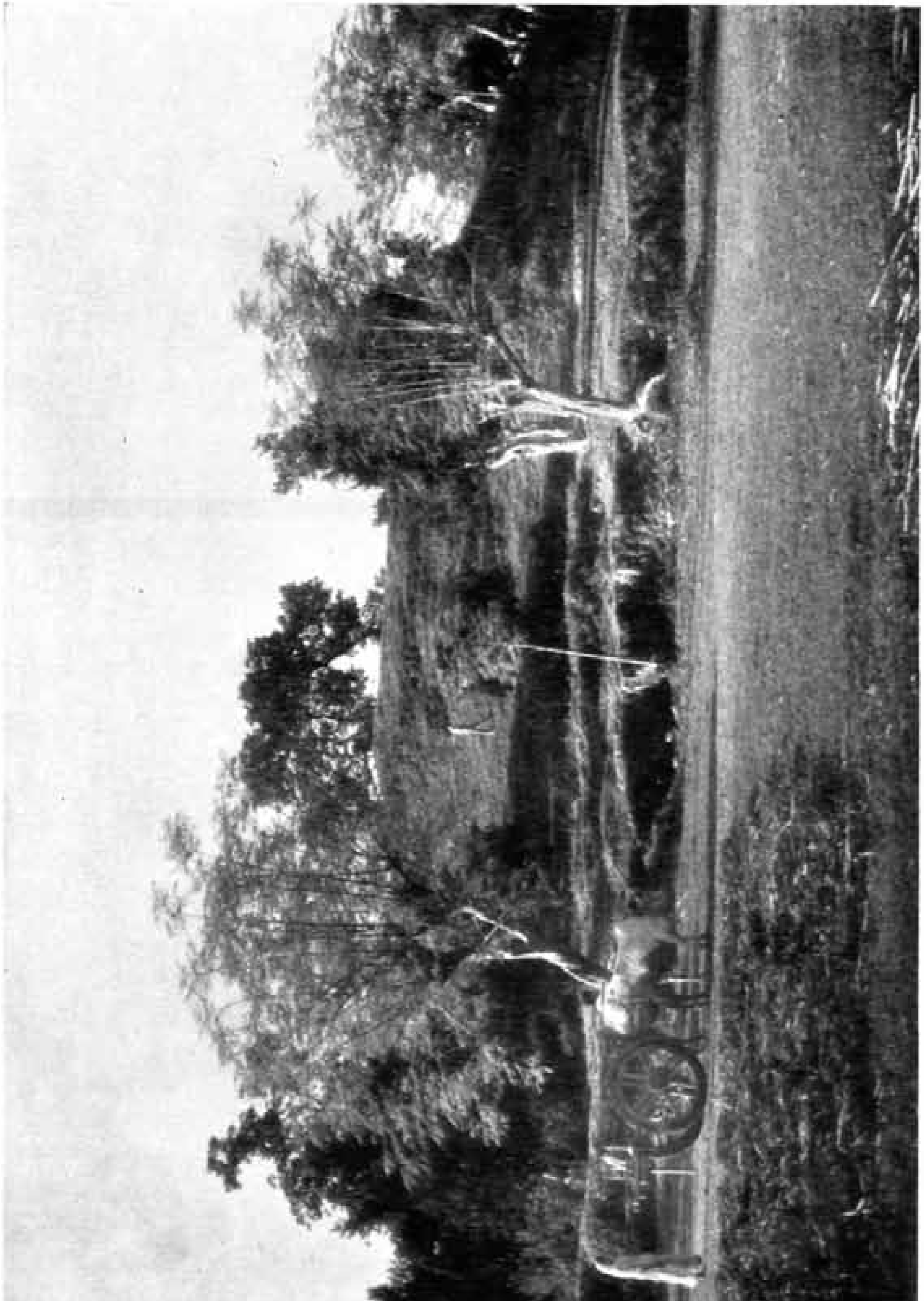


A

Antichak : A, *terracotta medallion*; B, *fragment of a limestone stupa*. *See p.* 9



Antichak : miscellaneous objects. *See p. 9*



Bakraur : a view of the site. See p. 9



A

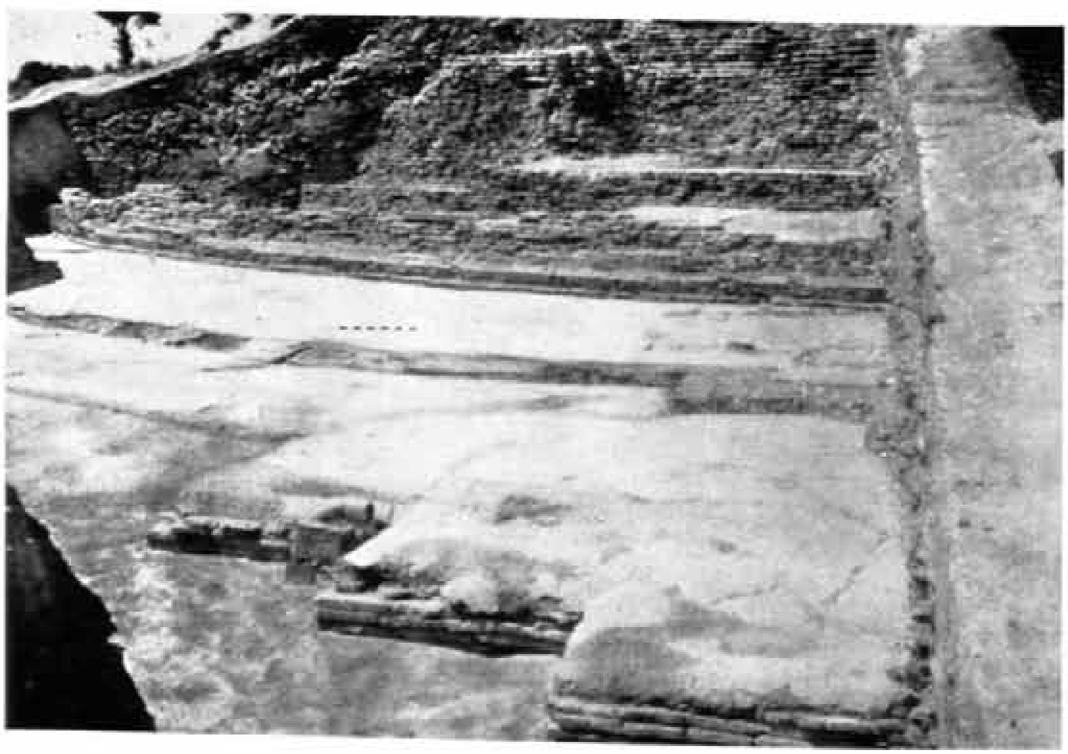


B

Bakraur : A, *remains of the earliest stupa with pradakshina-patha and enclosure wall*; B, *remains of three stages of construction of the stupa*. *See p. 9*



A



B

Bakraur : A, *remains of pradakshina-patha with lime plaster of stupa in second stage of construction*; B, *remains of pradakshina-patha of stupa in third stage of construction.* *See p. 9*



A



B



C

Bakraur : A, *head of Buddha in stone*; B, *plaques showing Buddha*; C, *punch-marked coins and other antiquities.* *See p. 10.*



A



B

Apsad : A, *a view of the site*; B, *remains of Vishnu temple*. *See pp. 10-11.*



A



B

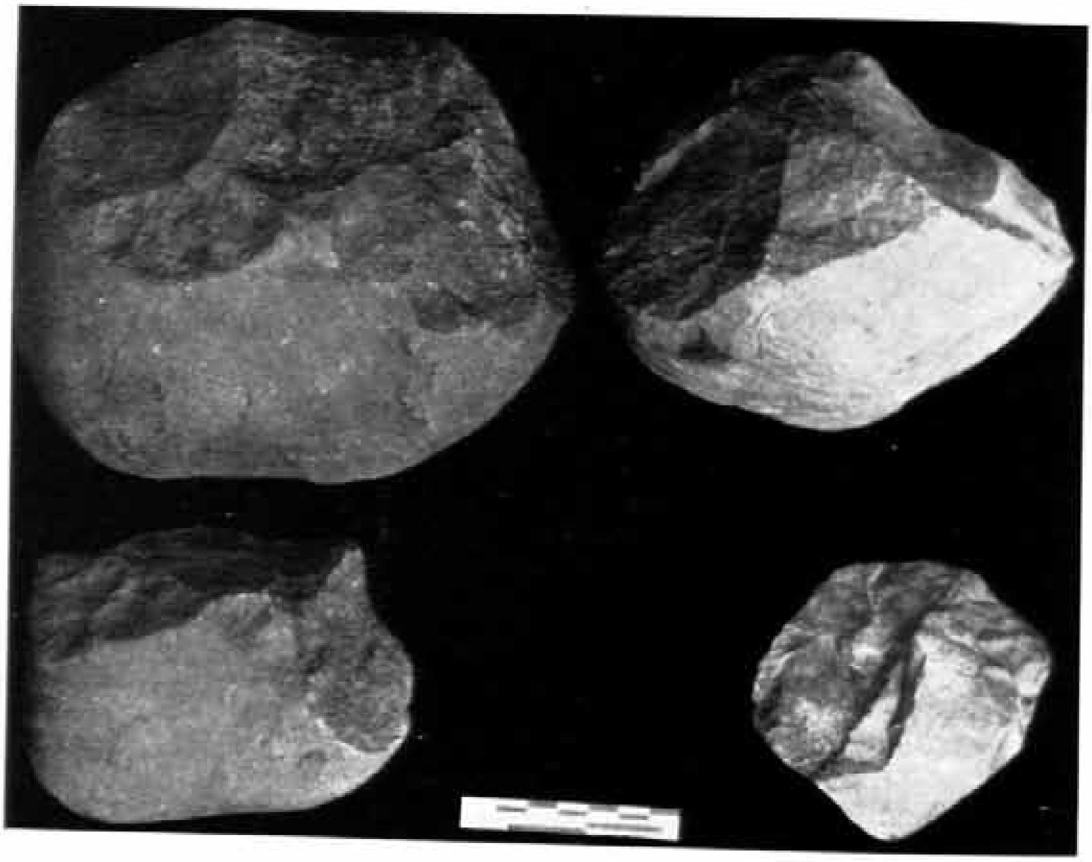


C

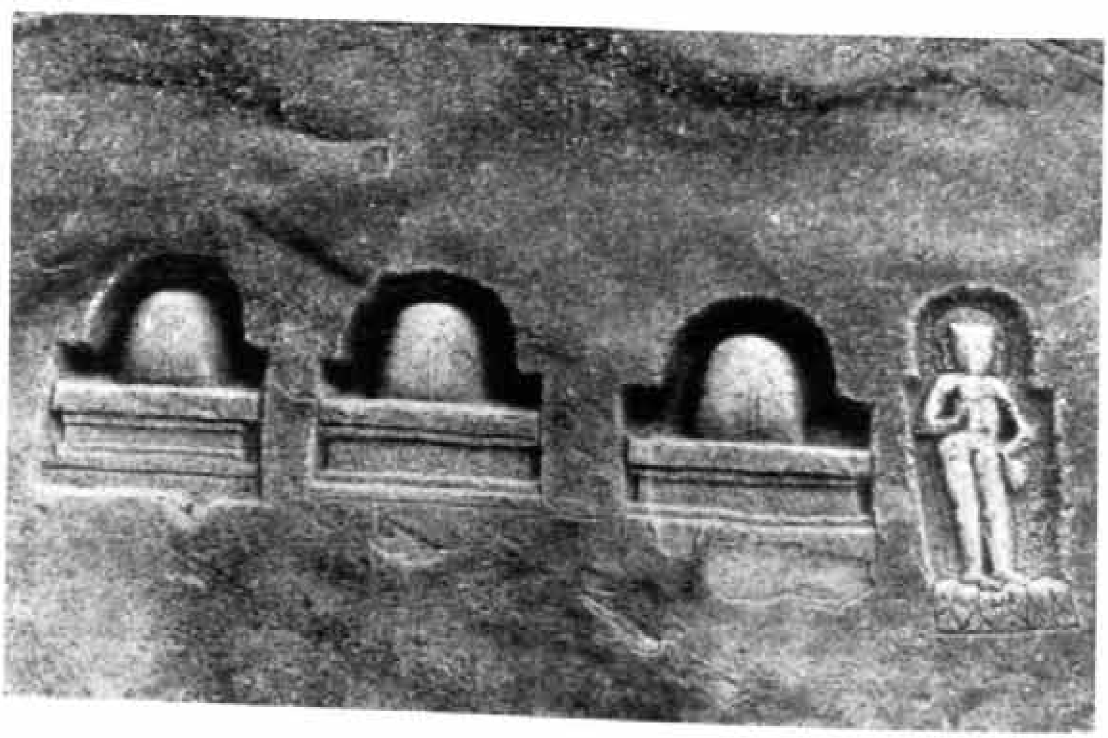


D

Karalchak : decorated tiles with, A, *vine plant and Kharoshthi numeral*; B, *a flower plant rising from a vase*; C, *flower and leaves*; D, *acanthus-like leaves and Kharoshthi numerals*. *See p. 13.*



A



B

A, *Tanda* : *Early Stone Age tools* ; B, *Ujhan* : *Saivite sculptures on a boulder*. *See pp. 13 and 15.*



A

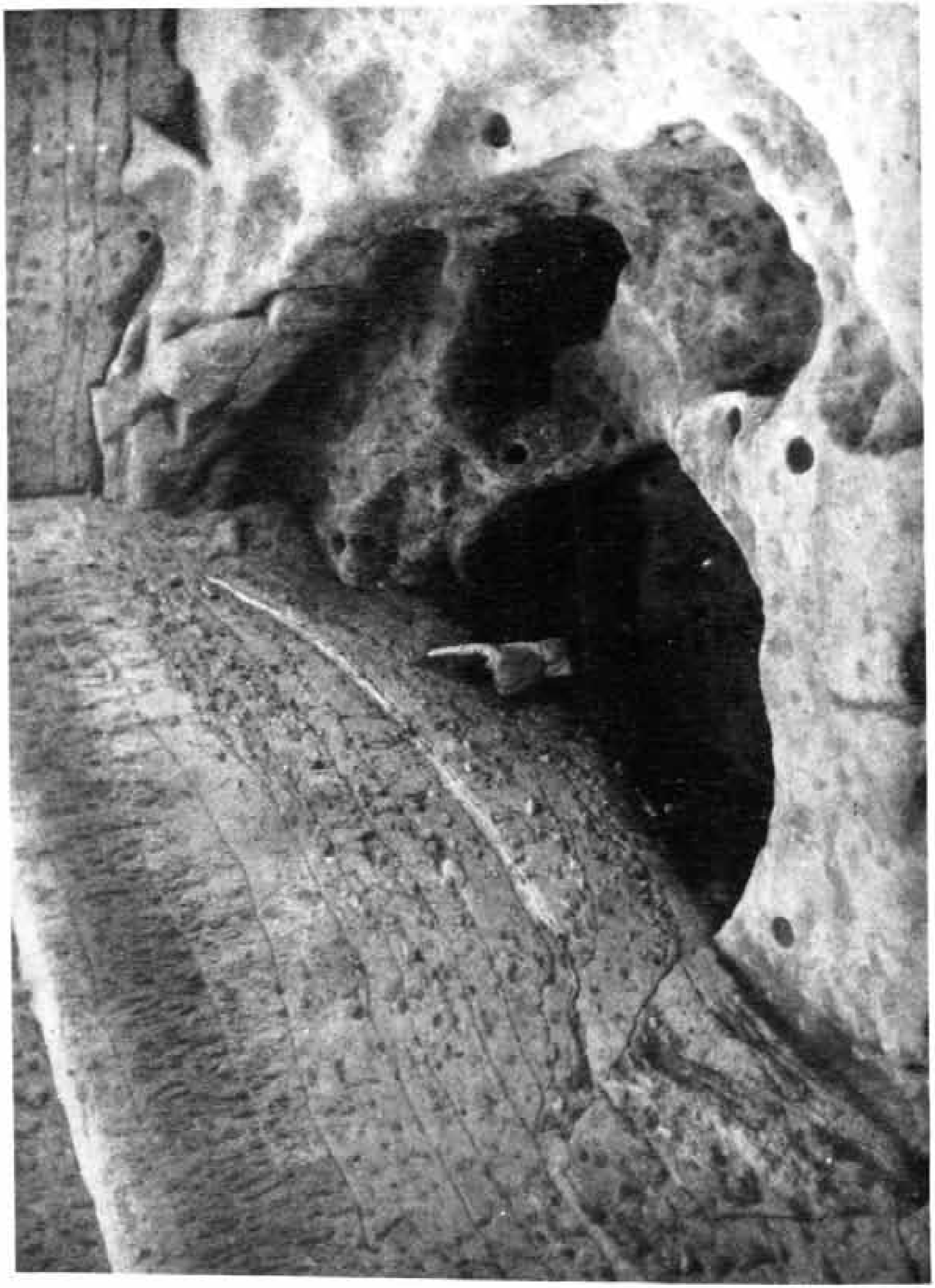


B

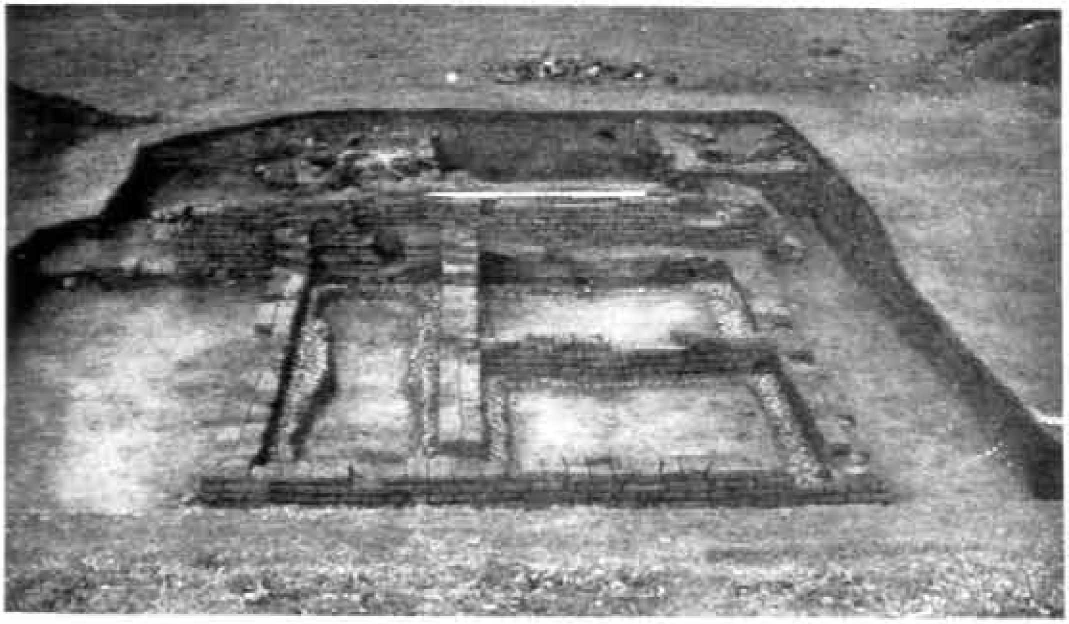


C

A, *Rajauri* : *pottery types* ; B, *Srinagar* : *four-armed mother goddess* ; C, *Harwan* : *diaper-pebble construction of a wall*. *See pp. 15-16*



Burzahom : dwelling-pit complex. *See p. 15*



A



B

Vadagaon-Madhavapur : A, *remains of a house*; B, *rectangular and circular pits*. *See p. 17*



A



B

Haigunda : standing Yaksha, A, front view; **B**, *back view. See p. 17*

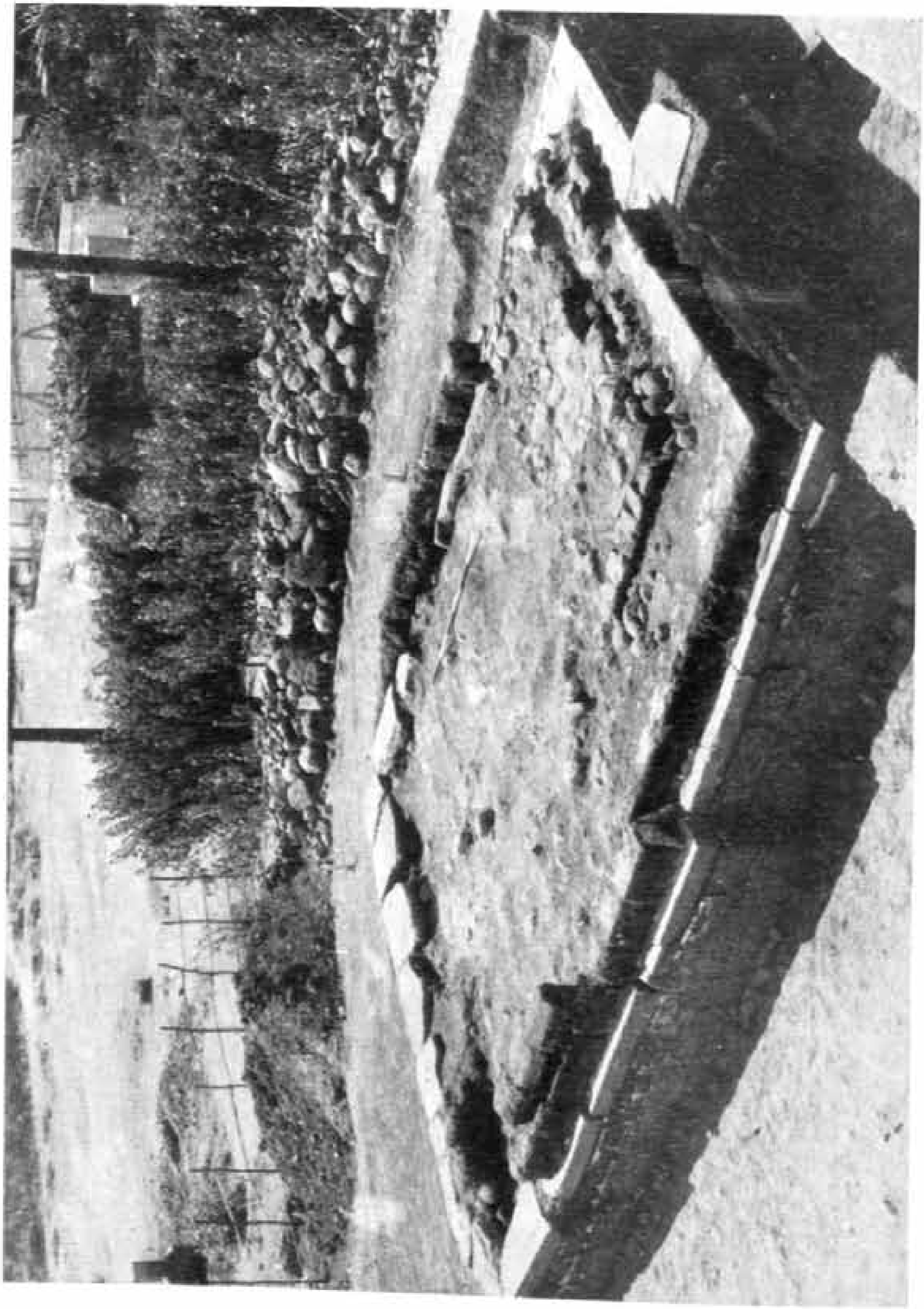


A



B

A, *Inamgaon : section on the right bank of the river Ghod*; B, *Yasar : left bank of the river Kan.* *See pp. 20-21*



Nanganallur : remains of a temple. *See p. 24*



A



B

Piprahwa : A, *remains of three phases of structures in the habitation area* ; B, *approach to the monastery built over the earlier complex.* *See p. 27*



Piprahwa : *remains of verandah of the first two phases of the eastern monastery.* *See p. 28*



A

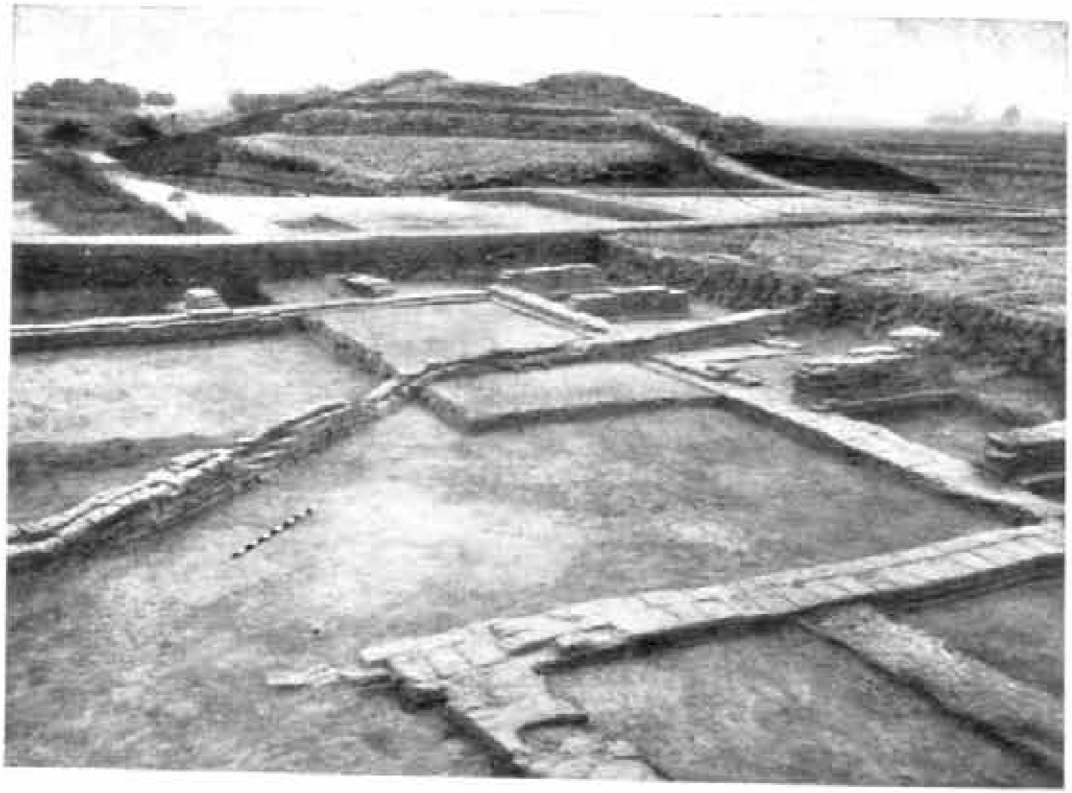


B

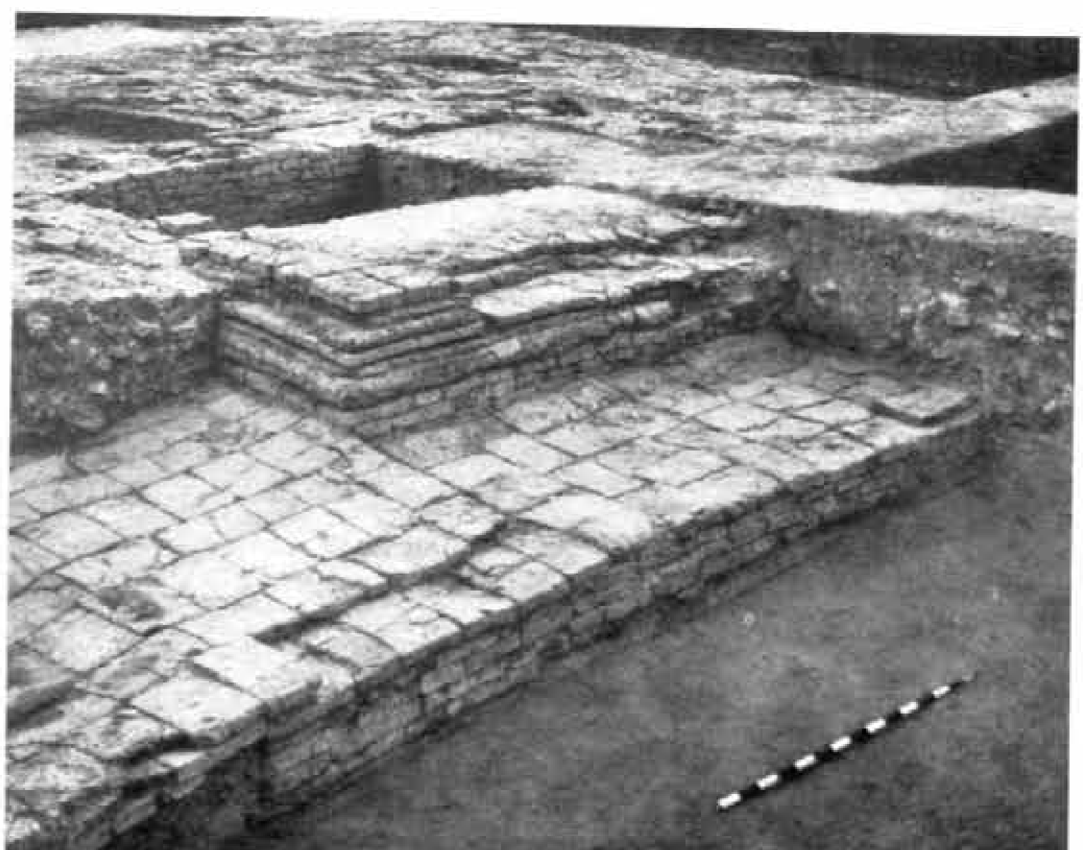


C

Piprahwa : A, *impression of an inscribed seal on the lid of a pot*; B, *coins*; C, *terracotta sealings with legend Kapilavastu.* *See pp. 27-28*



A



B

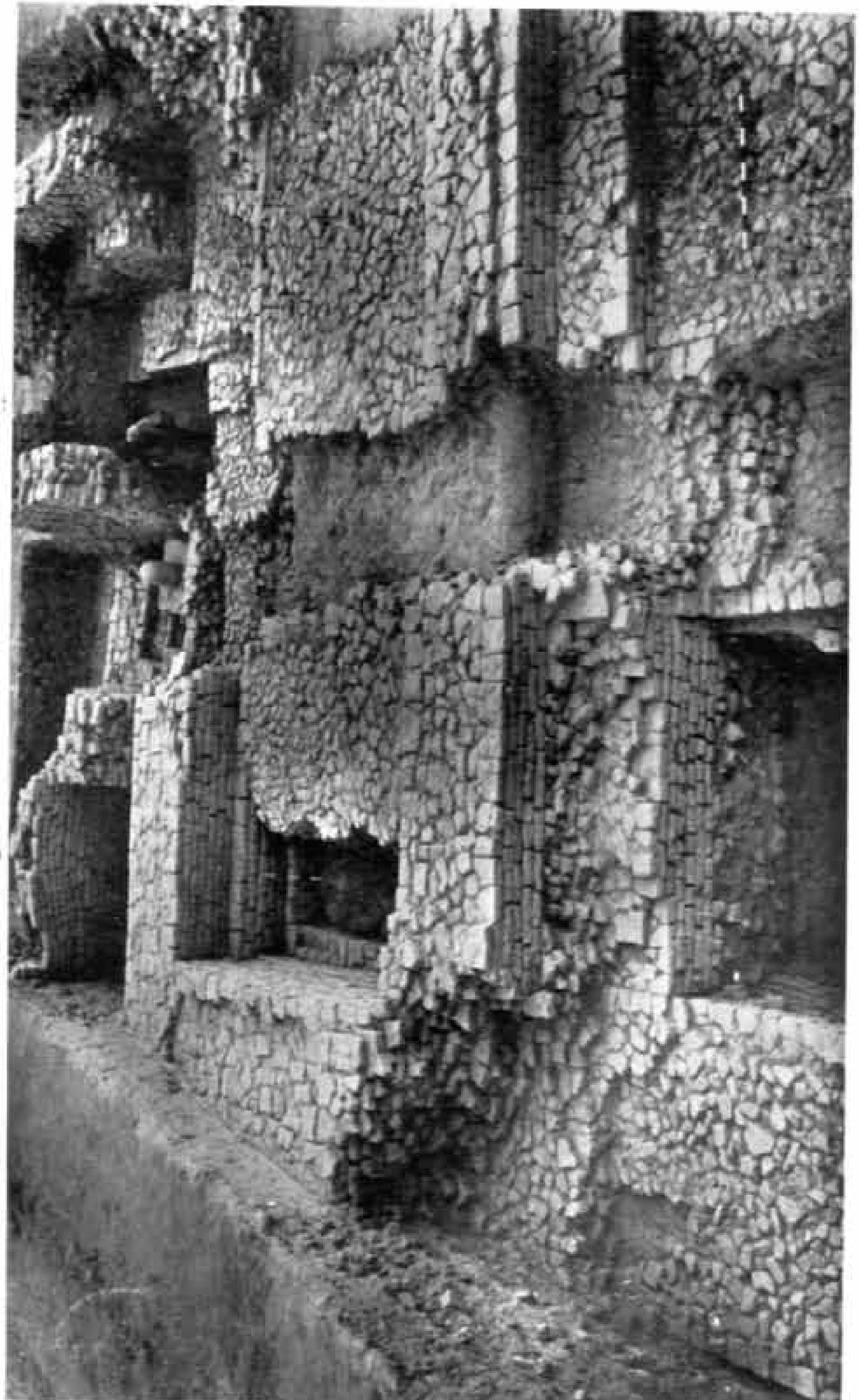


A

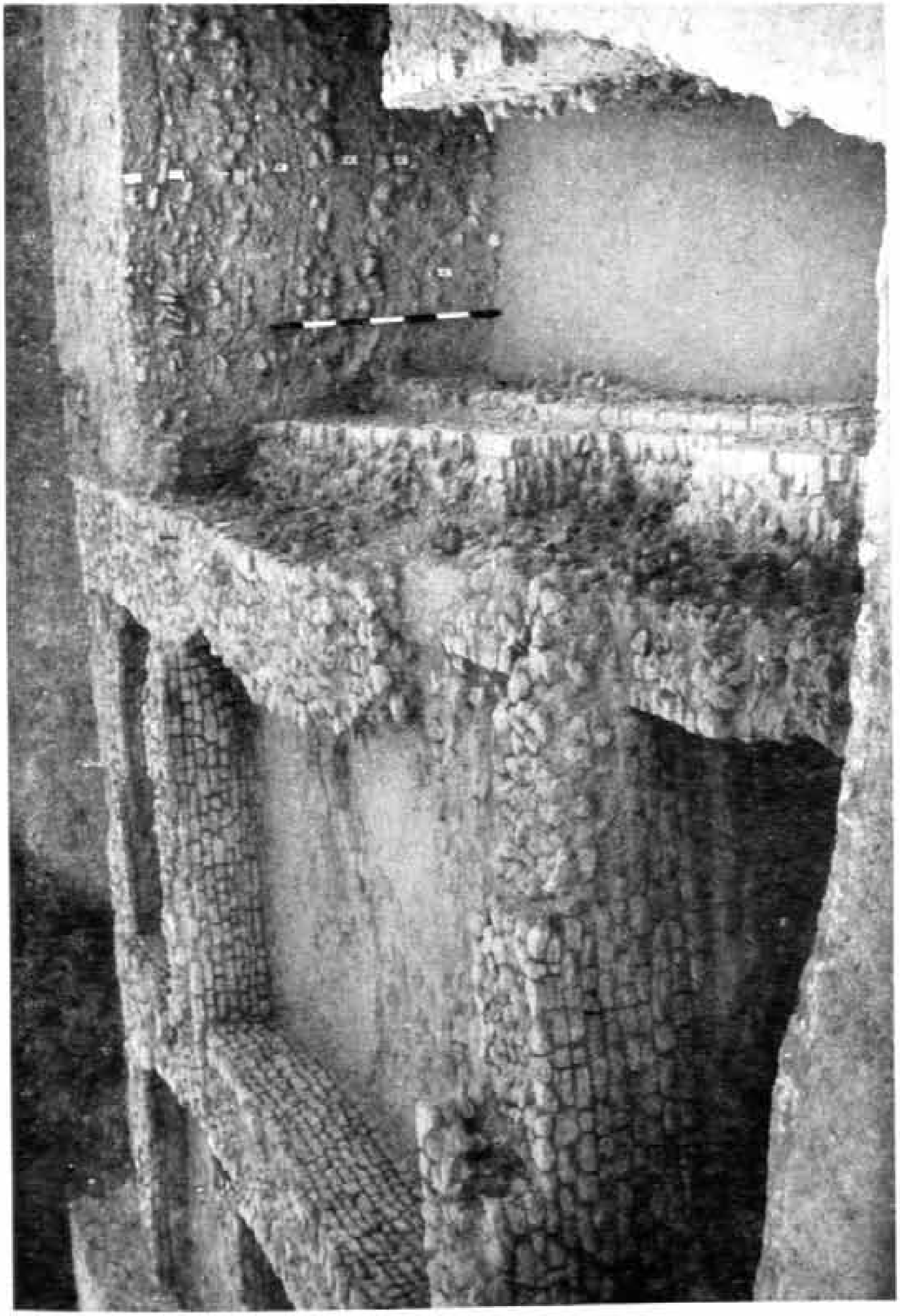


B

Virabhadra : A, *Siva-linga in Structure* 1, *Middle phase* ; B, *Structure* 2, *Late phase*. *See p.* 30



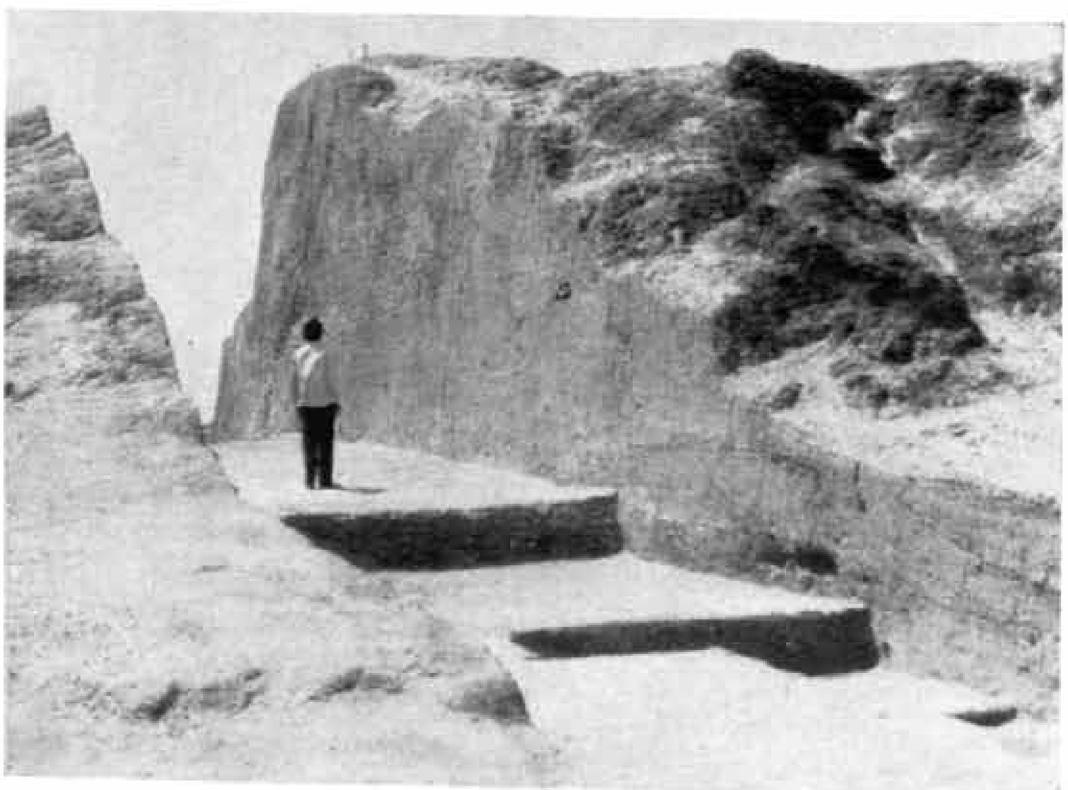
Vīrabhadra : structure 2 and other Structures of the Early phase. See p. 29



Jājmau : two rows of houses facing a street. *See p. 31*



A



B

Mathura : A, *a view of Dhulkot*; B, *cutting across Dhulkot*. *See p. 31*



A



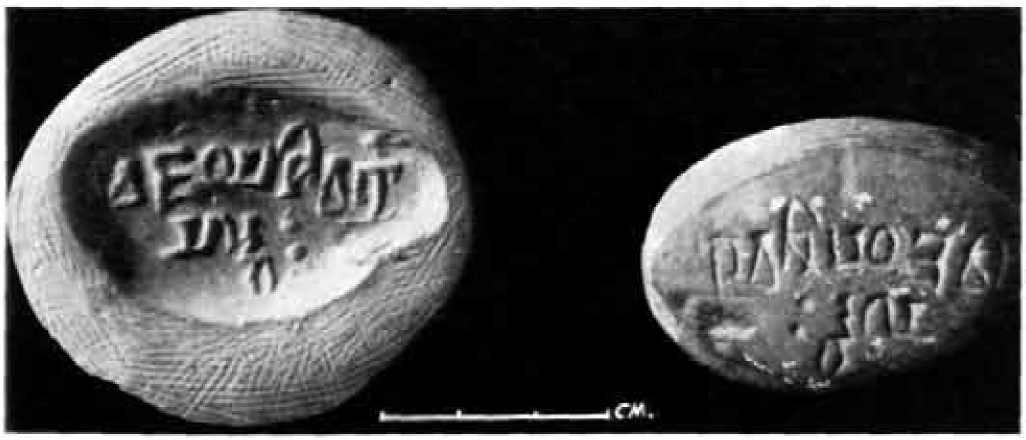


A





A



B



C

Mathura : A, *terracotta bird-shaped rattles*; B, *seal reading Vijayasiṃhagramarddhah*; C, *Later Kushan coins, Period III.* *See p. 32*



B



C



D

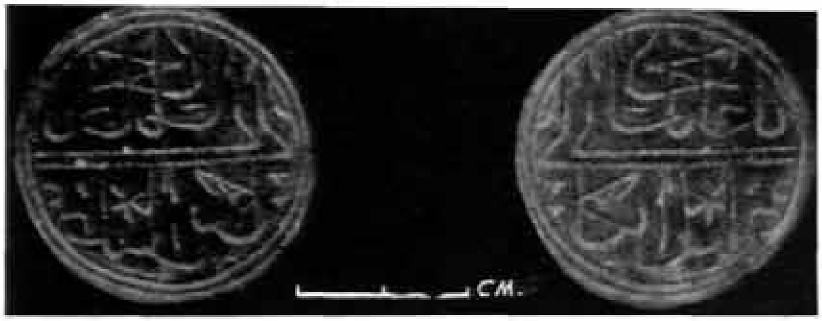


A

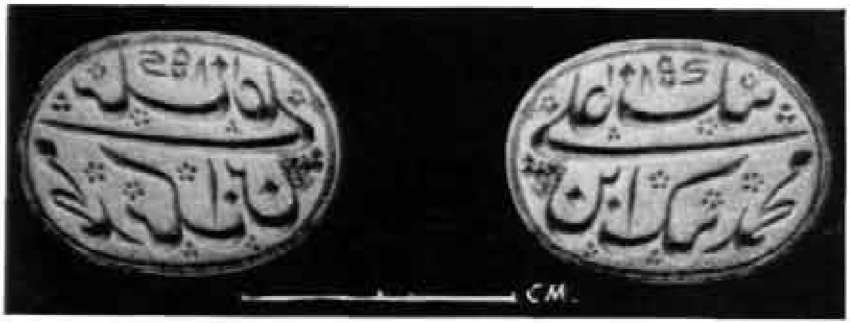


E

A, *Rajupeta* : *Qutb Shahi inscription*; B, *Mehrauli* : *an epitaph*; C, D *and* E, *Gujarat* : *inscriptions of the Sultans of Gujarat*. *See pp. 41-42*



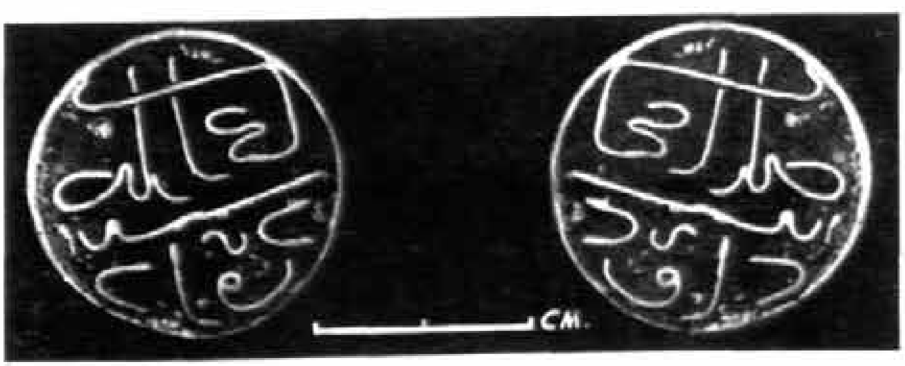
A



B

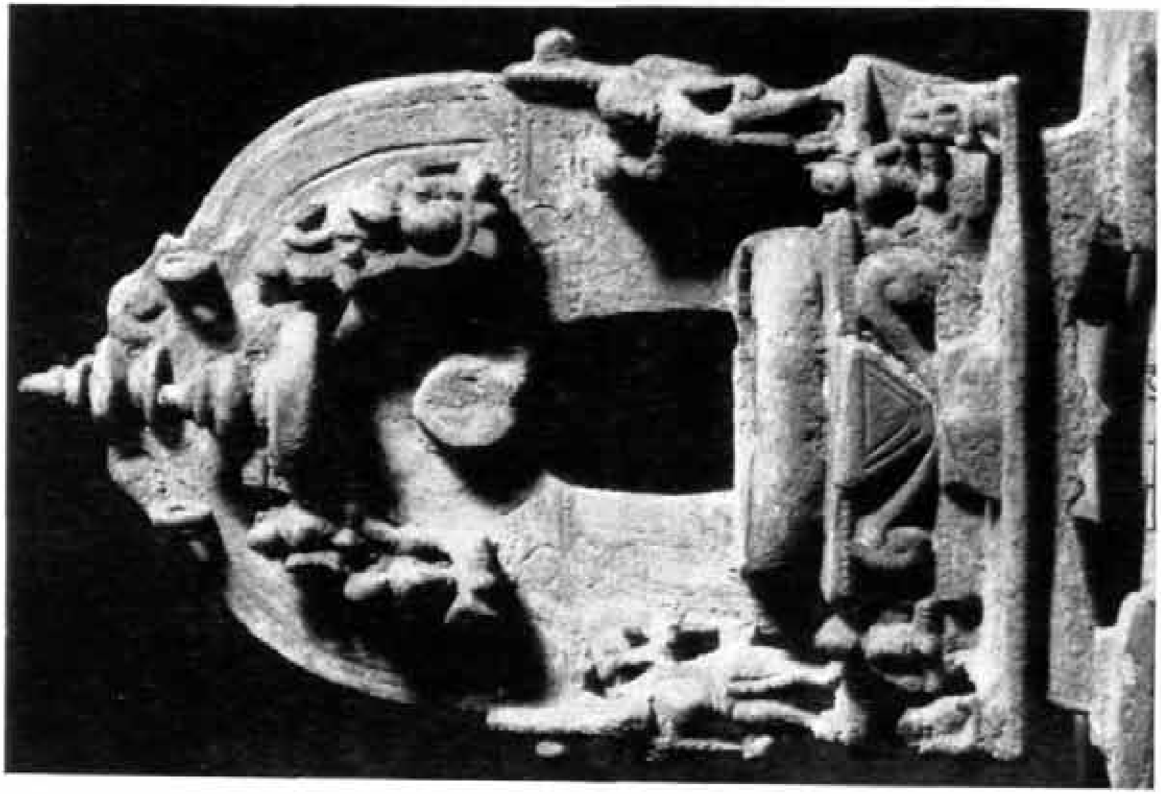


C



D

Mandu : A, *stone seal*; B *and* C, *brass seals*; D, *copper seal*. *See p. 51*

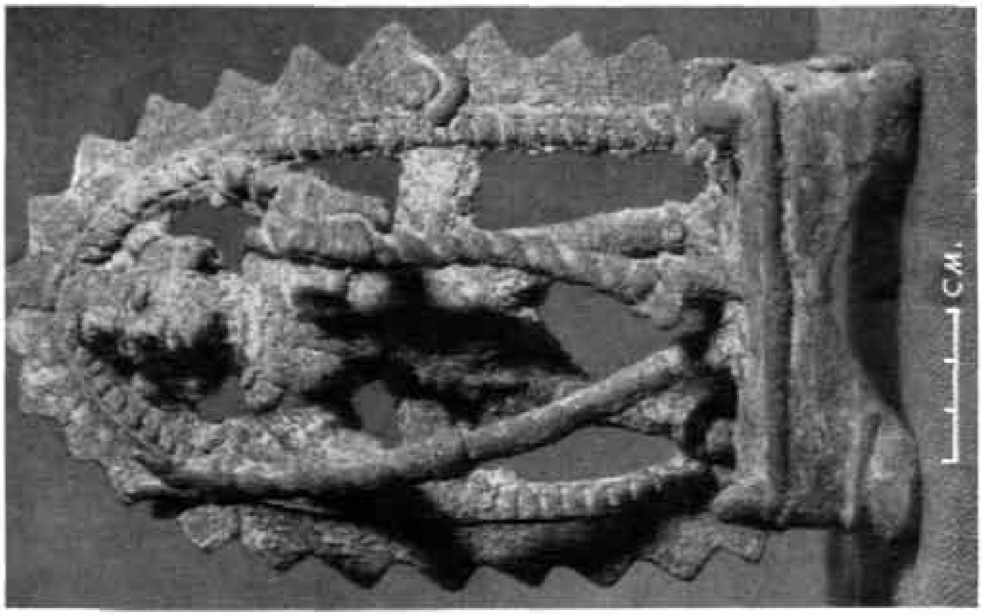


B

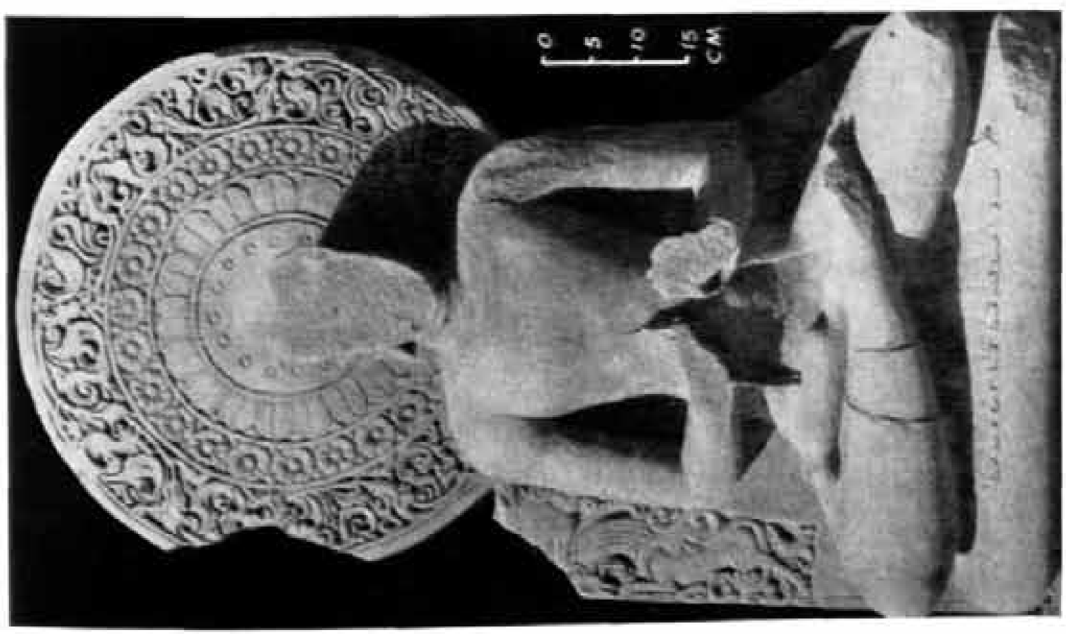


A

Mandhata : inscribed brass throne, A, back view; B, front view. *See p. 51*



B



A

A, *Pawaya : stone image of Buddha, Gupta period*; B, *Bijamandal : copper-image of Devi, Medieval period.* *See p. 51*



A



B



C

Mathura Government Museum: A, *water-chute from Beswa*; B, *lintel-panel from Chaurasi Khamba temple*; *and* C, *sculpture from Sonkh*. *See p. 58*



A



B

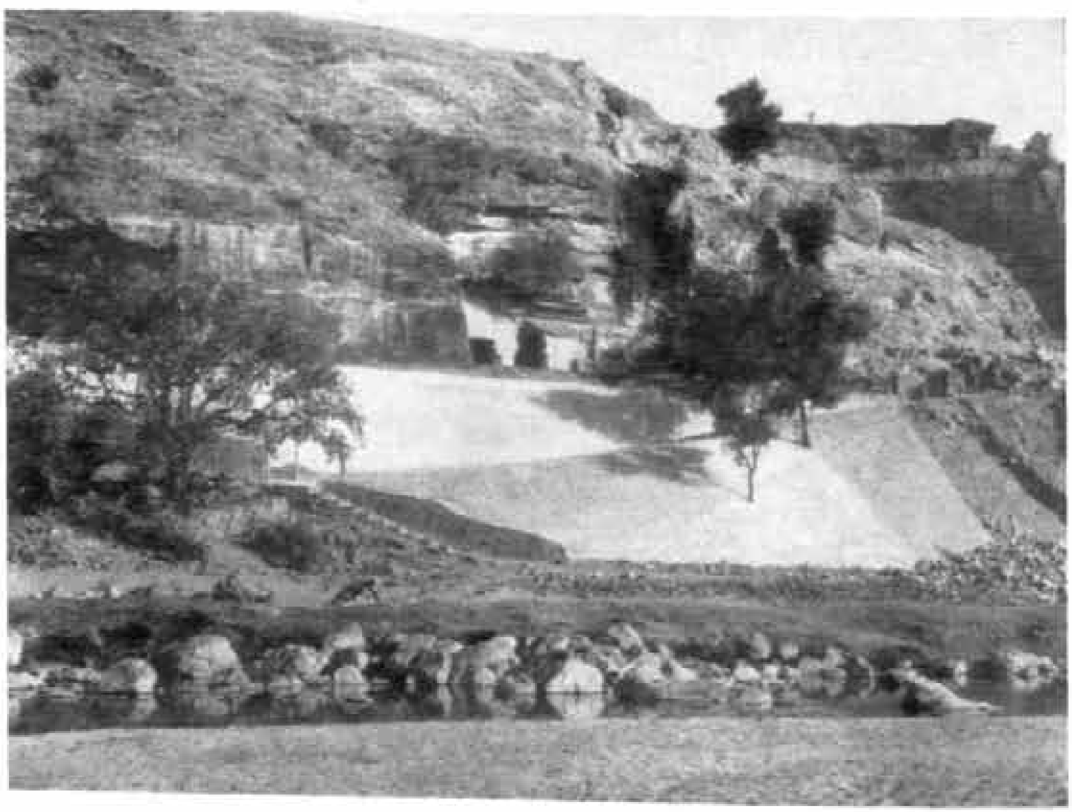


C

National Museum, New Delhi : A, *Nataraja from Orissa*; B, *yaksha from Kondapur*; C, *Vishnu with consorts, Pala period.* *See p. 59*



A

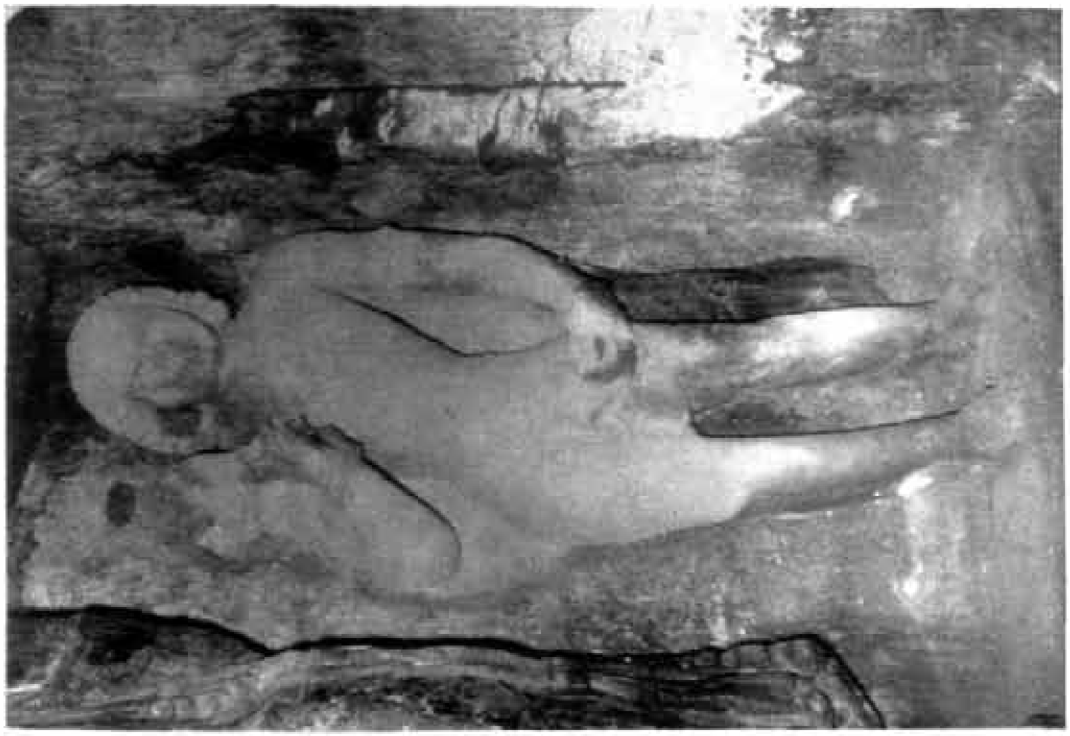


B

Bagh : rock-cut caves, foreground, A, before conservation and B, after conservation. *See p. 61*

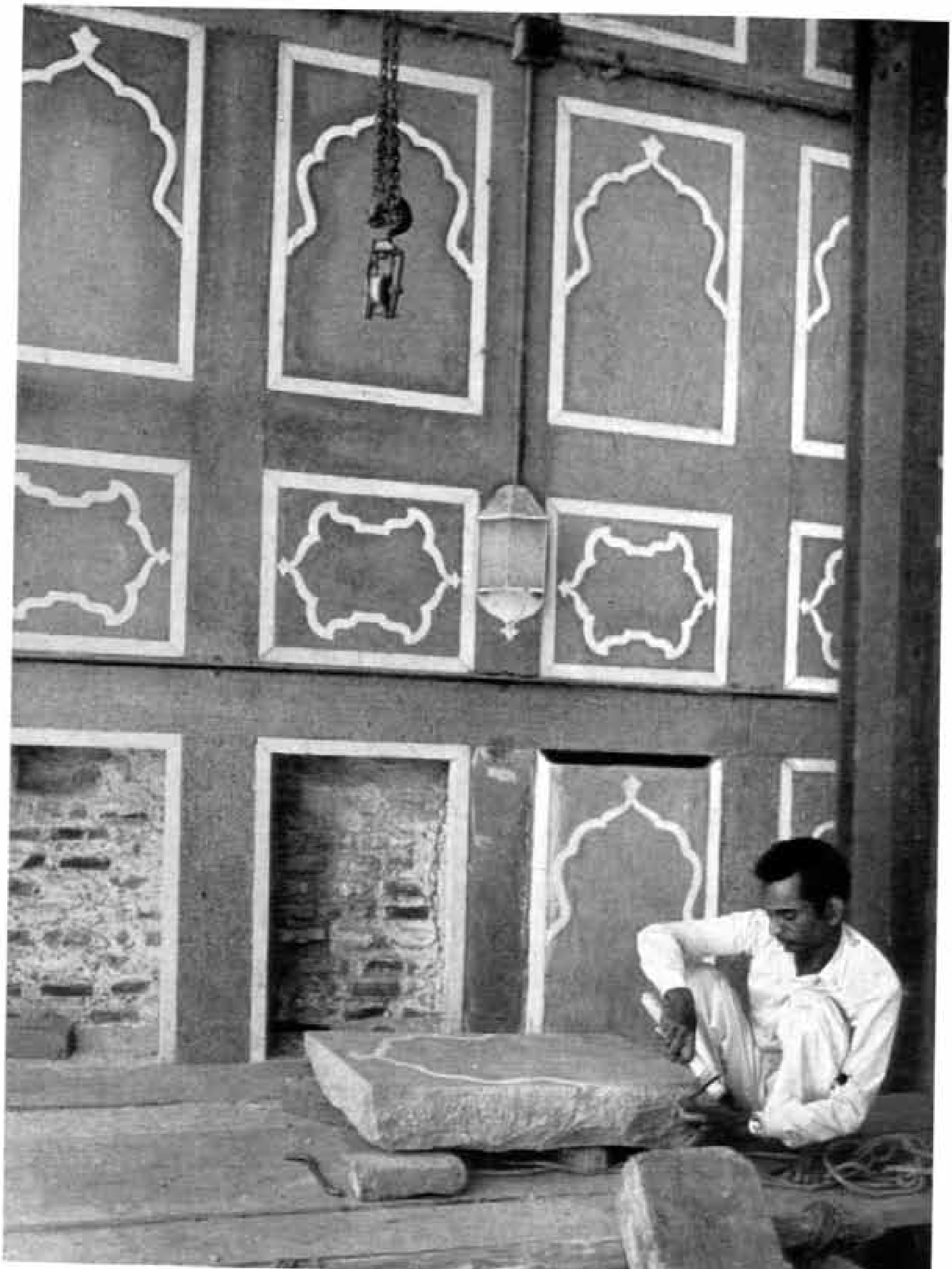


A



B

Bagh : rock-cut caves, sculpture, A, *before conservation and* B, *after conservation.* *See p. 61*



Delhi : *Jami-Masjid, during repairs.* *See p. 69*

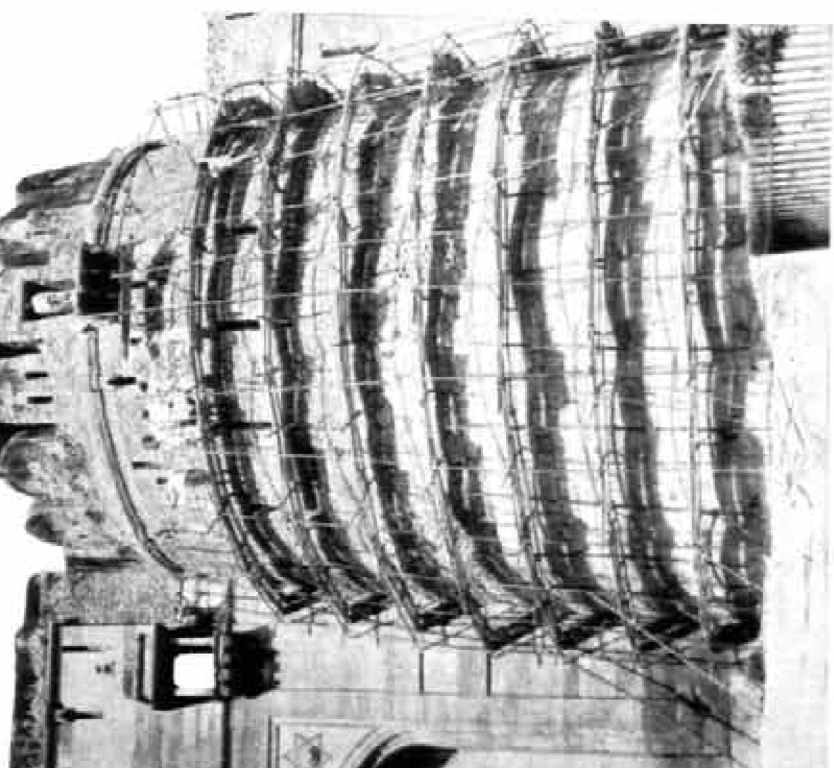


A

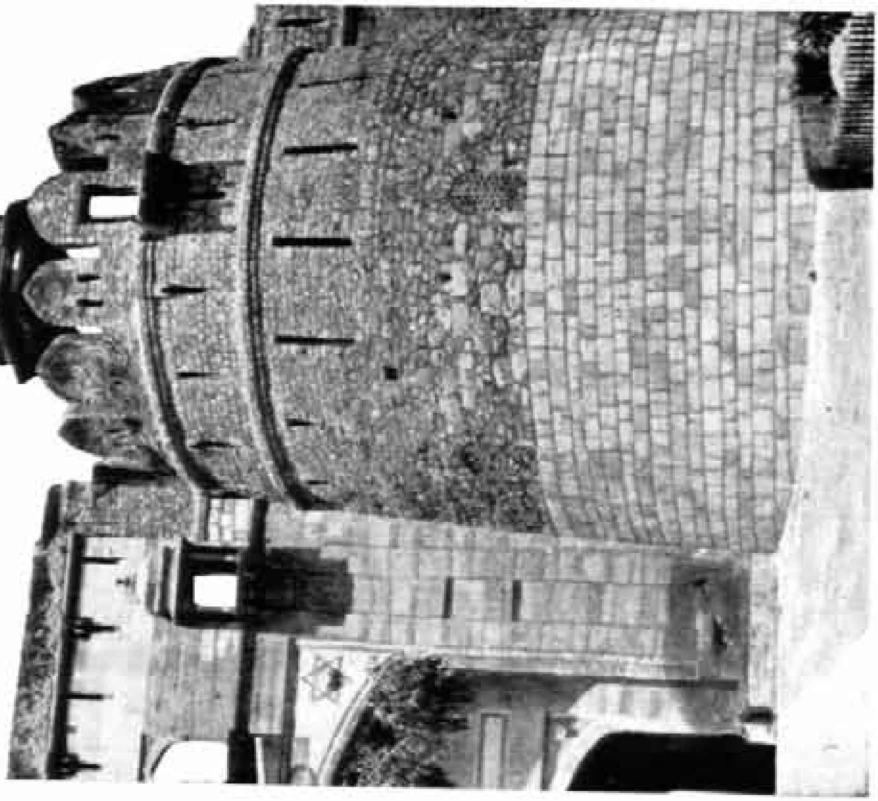


B

Delhi : Khirki-Masjid, A, *before conservation, and* B, *after conservation.* *See p. 69*

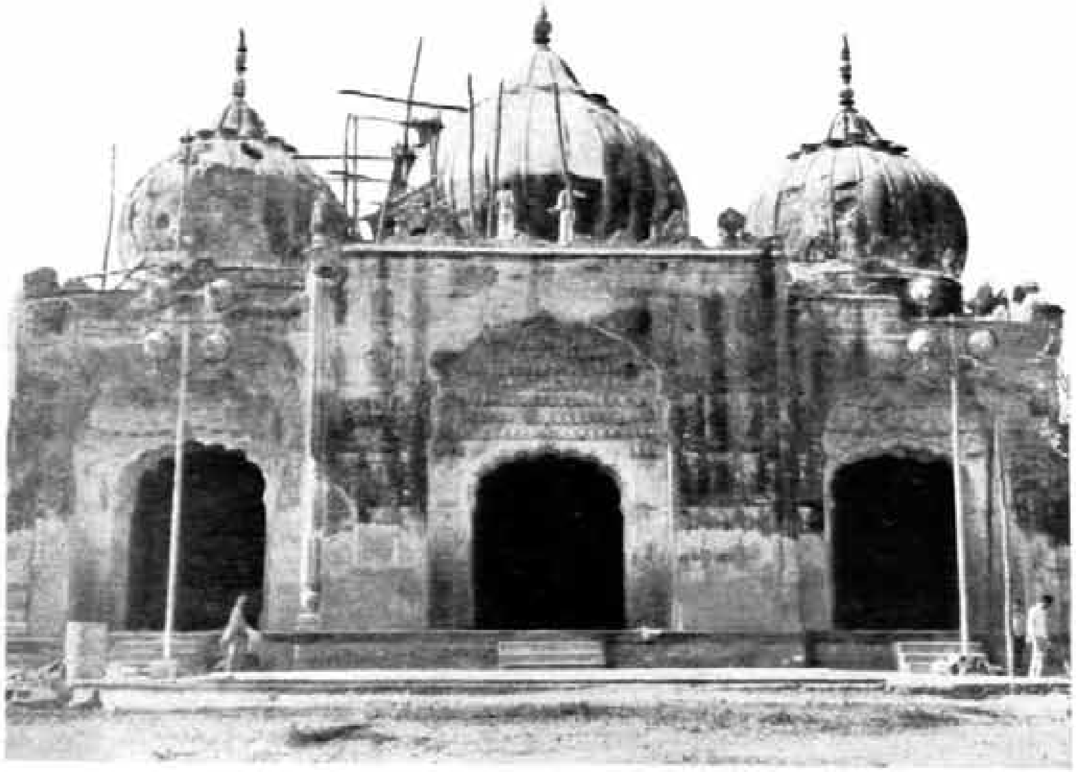


A



B

Delhi : Purana Qila, bastion of fort-wall, A, during repairs and B, after repairs. *See p. 69*

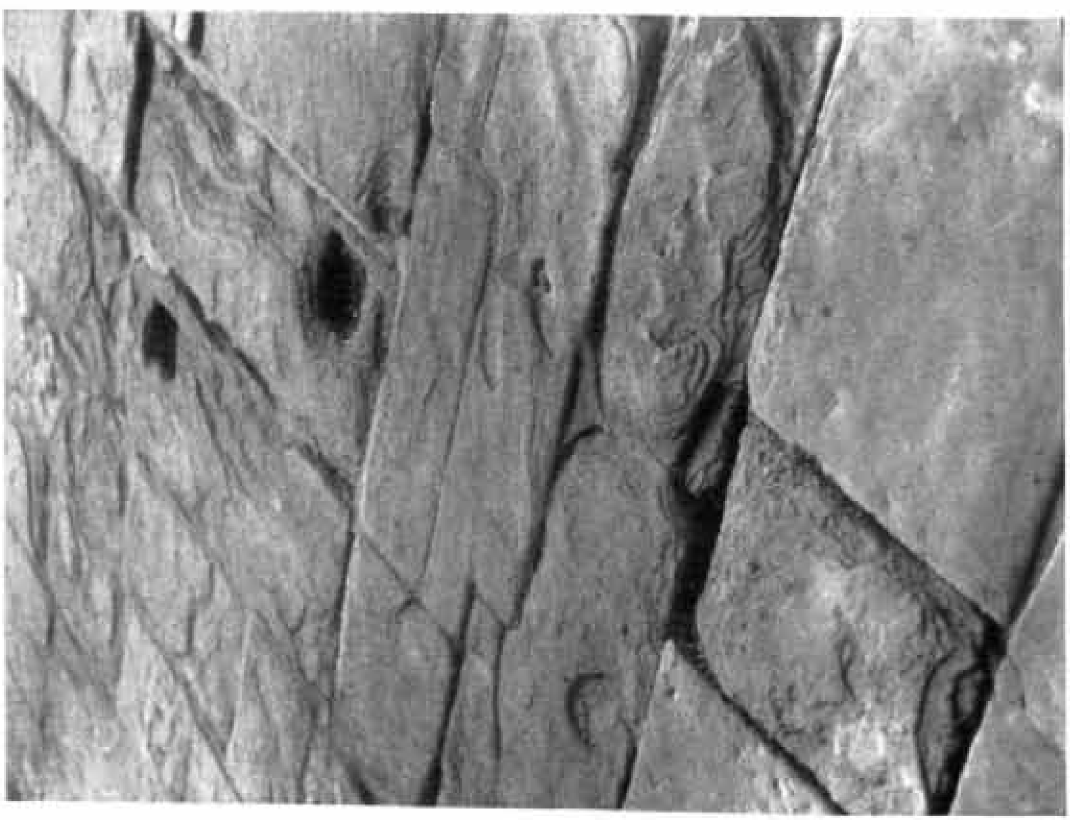


A



B

Delhi : A, *Qudsia mosque, during repairs*; B, *Roshanara Baradari, remains of earlier structures exposed during clearance.* *See pp. 69-70*

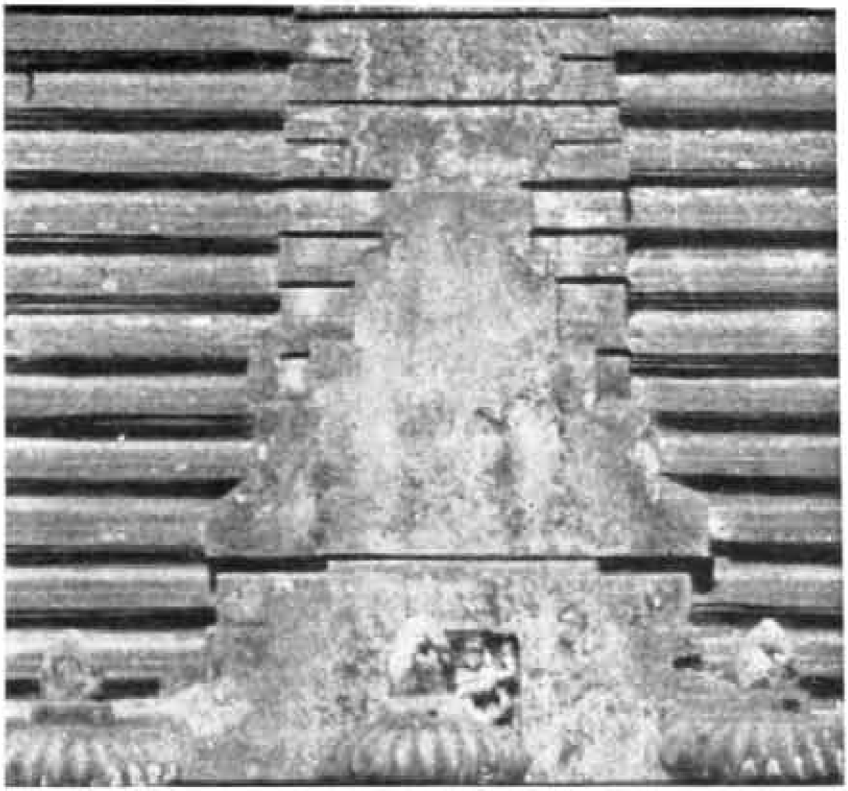


A



B

Delhi : Red Fort, Diwan-i-Am, flooring, A, before repairs and B, during repairs. *See p. 70*

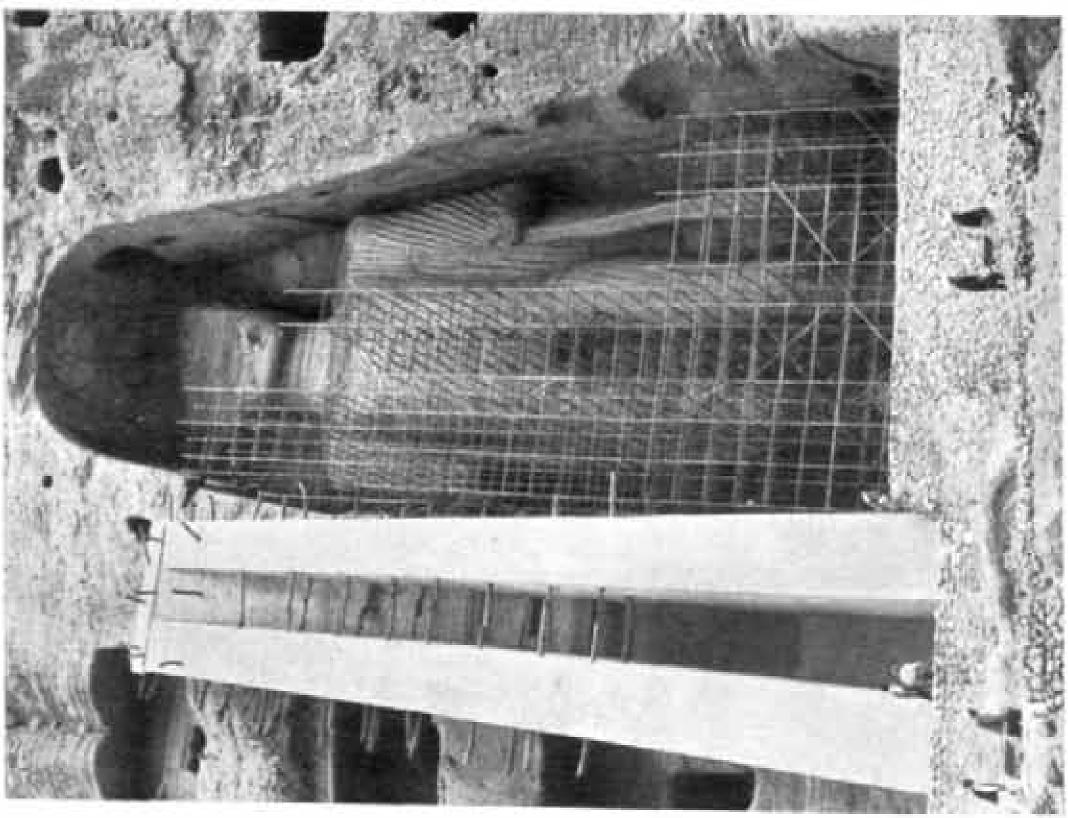


A



B

Mukhalingam : Mudhukesvara temple, A, *before removal of plaster and* B, *after removal.* *See p. 77*



A



B

Bamiyan, Afghanistan : shrine of 'Small Buddha', A, during repairs and B, after repairs. See p. 84



A



B

Bamiyan, Afghanistan : Cave 2, painted panel, A, *before chemical treatment and* B, *after chemical treatment.* *See p. 85*



B

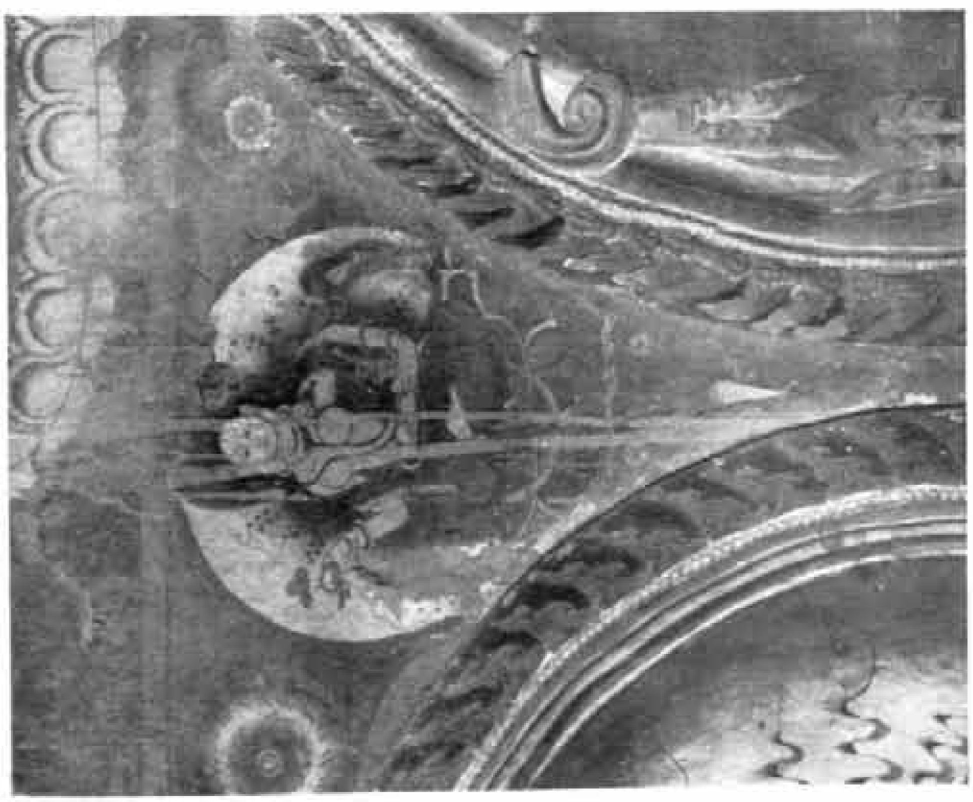


A

Bamiyan, Afghanistan : Cave 15, painted panel, A, *before and* B, *after chemical treatment.* *See p. 85*

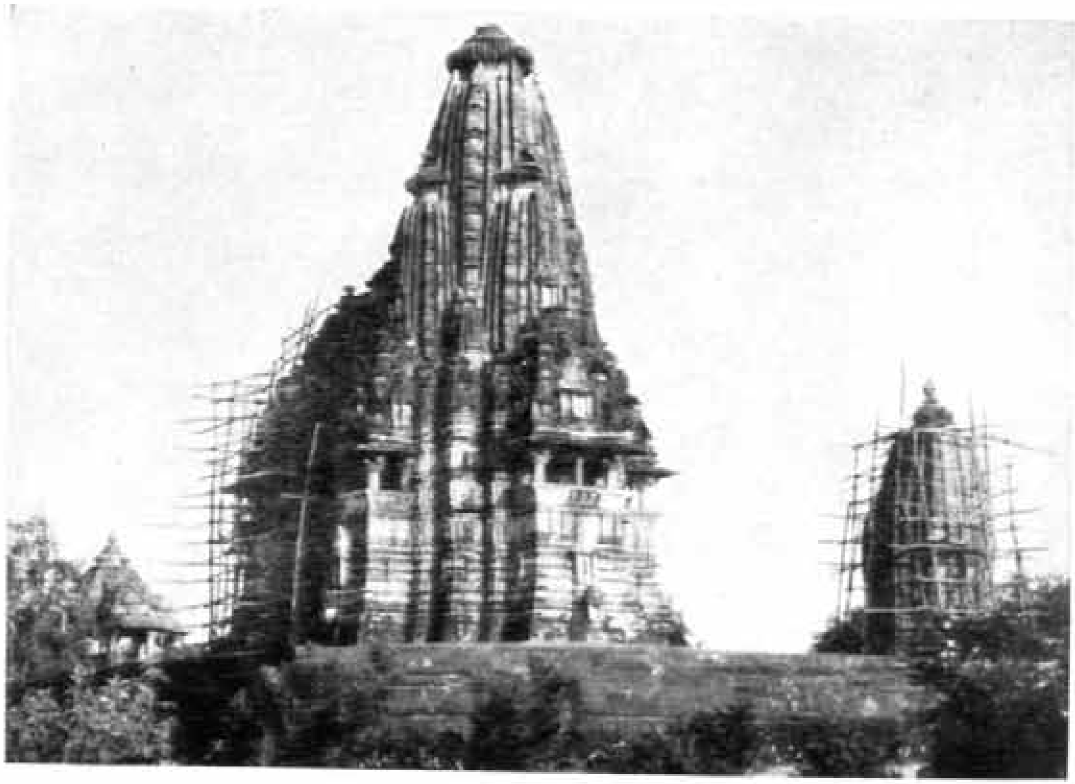


B

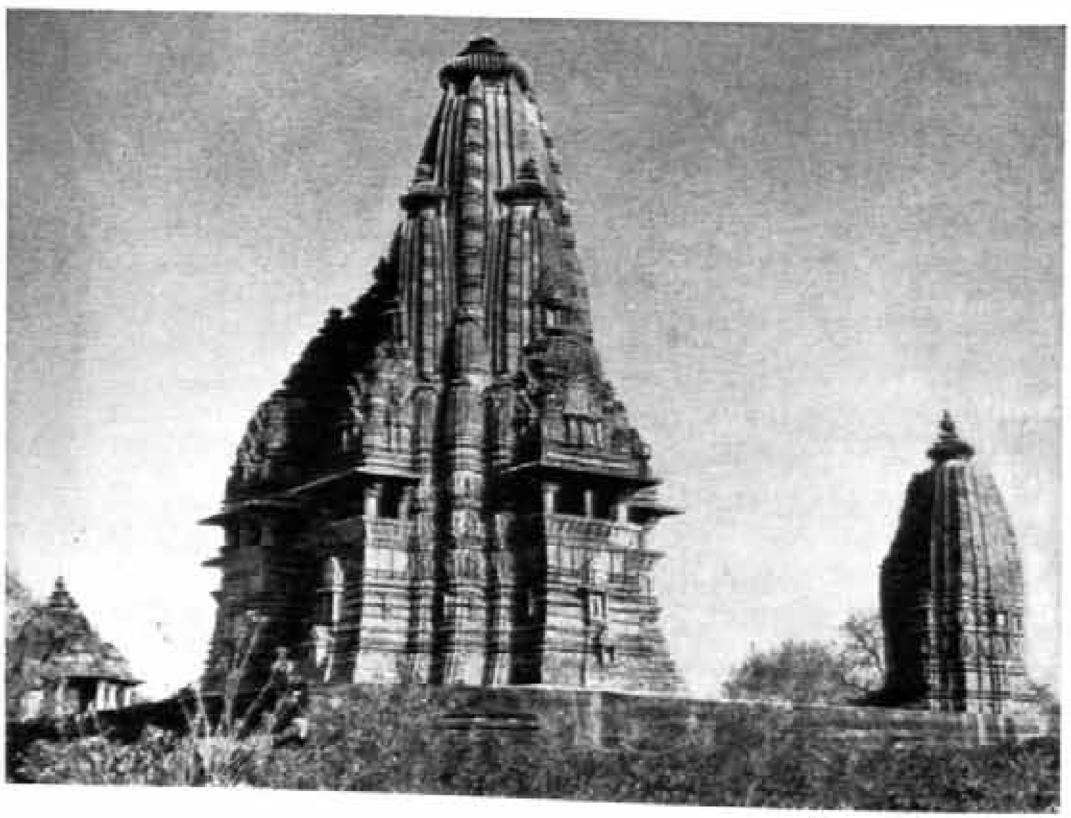


A

Spiti: Dawang gumpha, painted panel, A, *before chemical treatment and* B, *after chemical treatment.* *See p. 86*

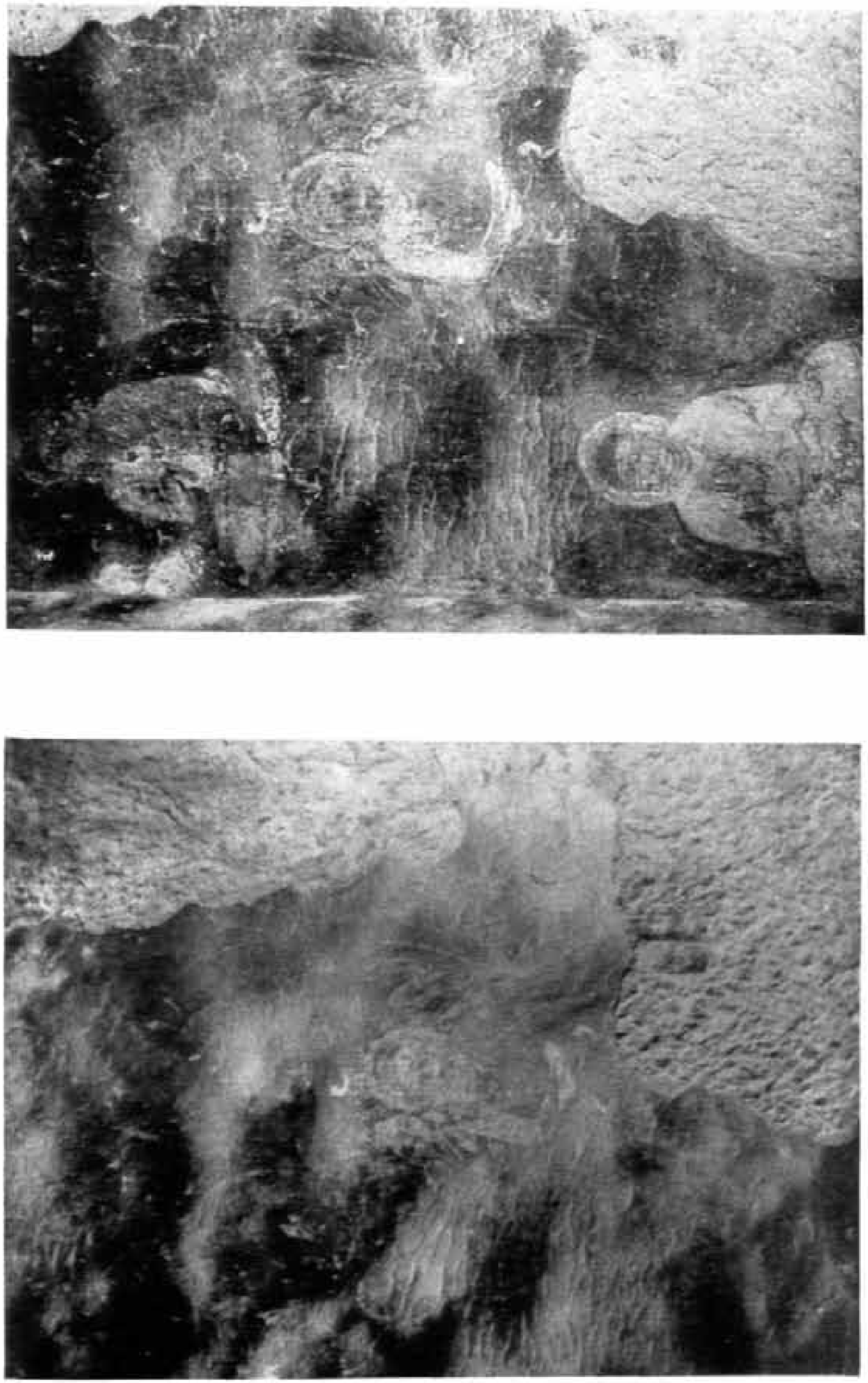


A



B

Khajuraho : *Visvanatha temple*, A, *during and* B, *after chemical treatment.* *See p. 87*



A B

Ajanta : Cave 6, painting on wall, A, before and B, after chemical treatment. *See p. 87*

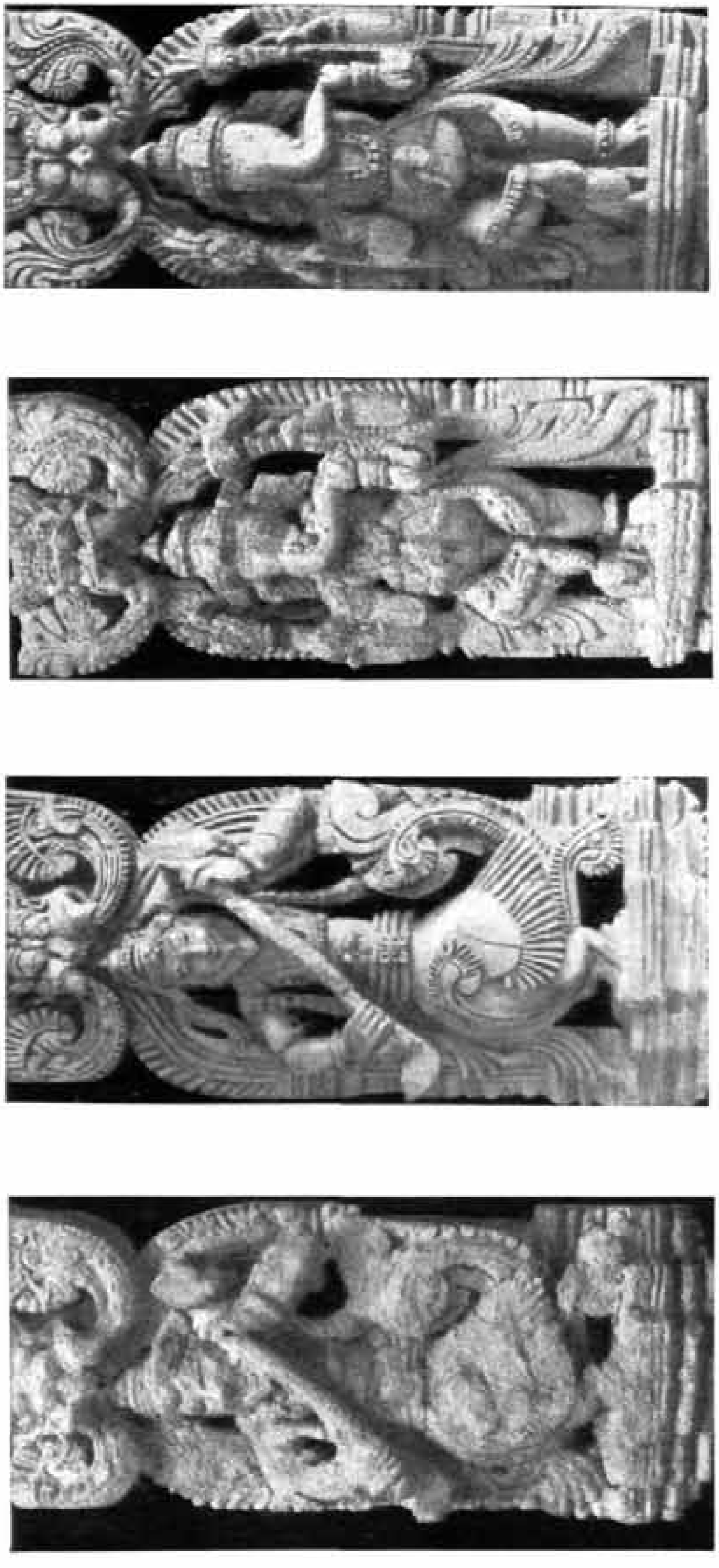


A



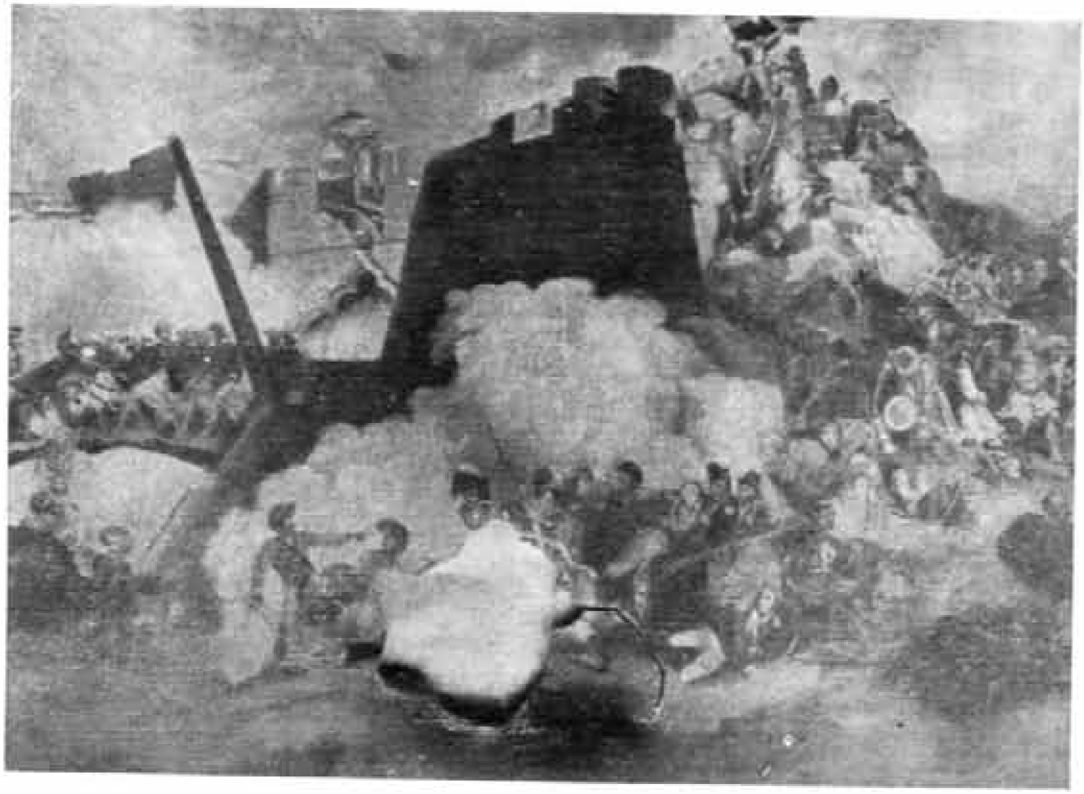
B

Guptipara : *Vrindaban Chandra temple, wall-painting,* A, *before and* B, *after chemical treatment.* *See p. 90*

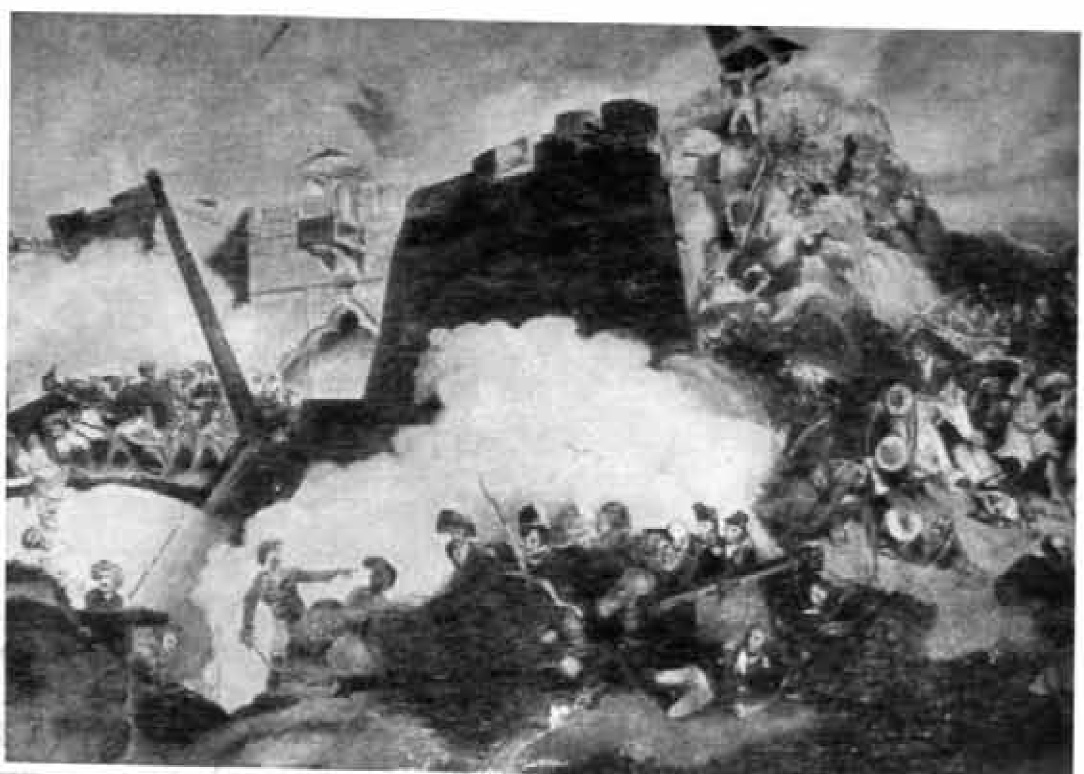


A B C D

Halebid : Archaeological Museum, Brahma, A, *before chemical treatment and* B, *after chemical treatment ; dancing Ganesa,* C, *before chemical treatment and* D, *after chemical treatment.* *See p. 90.*



A



B

Srirangapatna : *canvas painting*, A, *before chemical treatment and* B, *after chemical treatment.* *See p. 93.*